



109751708-020102 #7

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Lys Phe Phe Thr Asp Leu Ile Asn Phe Glu Asp Leu Leu Ile Asn Phe  
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Tyr Pro Ile Arg Tyr Ser Ile Asn Cys Tyr Gly Gly Glu Ile Asp Arg  
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 130 135 140

Lys Glu Arg Lys Lys Ile Pro Ile Asn Leu Trp Ile Asn Gly Val Gln  
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Lys Glu Val Ser Leu Asp Lys Val Gln Thr Asp Lys Lys Asn Val Thr  
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Lys Leu Tyr Asn Asn Asp Thr Leu Gly Gly Lys Ile Gln Arg Gly Lys

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           115                  120                  125

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165 170 175

Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn  
180 185 190

Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro Tyr  
195 200 205

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                                         Met Lys
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Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys Tyr			
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260	265		
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Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr Val Ser Ala Thr Lys			
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Asn Leu Lys Gln Ile Tyr Tyr Asn Glu Lys Ala Lys Thr Glu Asn  
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Lys Glu Ser His Asp Gln Phe Leu Gln His Thr Ile Leu Phe Lys Gly  
 65 70 75 80

Phe Phe Thr Asn His Ser Trp Tyr Asn Asp Leu Leu Val Asp Phe Asp  
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Ser Lys Asp Ile Val Asp Lys Tyr Lys Gly Lys Lys Val Asp Leu Tyr  
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Gly Ala Tyr Tyr Gly Tyr Gln Cys Ala Gly Gly Thr Pro Asn Lys Thr  
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Ala Cys Met Tyr Gly Val Thr Leu His Asp Asn Asn Arg Leu Thr  
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Glu Glu Lys Lys Val Pro Ile Asn Leu Trp Leu Asp Gly Lys Gln Asn  
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Thr Val Pro Leu Glu Thr Val Lys Thr Asn Lys Lys Asn Val Thr Val  
 165 170 175

Gln Glu Leu Asp Leu Gln Ala Arg Arg Tyr Leu Gln Glu Lys Tyr Asn  
 180 185 190

Leu Tyr Asn Ser Asp Val Phe Asp Gly Lys Val Gln Arg Gly Leu Ile  
 195 200 205

aaa gct aaa act gaa aat aaa gag agt cac gat caa ttt tta cag cat Lys Ala Lys Thr Glu Asn Lys Glu Ser His Asp Gln Phe Leu Gln His 60 65 70	483
act ata ttg ttt aaa ggc ttt ttt aca aat cat tca tgg tat aac gat Thr Ile Leu Phe Lys Gly Phe Phe Thr Asn His Ser Trp Tyr Asn Asp 75 80 85 90	531
tta tta gta gat ttt gat tca aag gat att gtt gat aaa tat aaa ggg Leu Leu Val Asp Phe Asp Ser Lys Asp Ile Val Asp Lys Tyr Lys Gly 95 100 105	579
aaa aaa gta gac tta tat ggt gct tat tat ggt tat caa tgt gcg ggt Lys Lys Val Asp Leu Tyr Gly Ala Tyr Gly Tyr Gln Cys Ala Gly 110 115 120	627
ggt aca cca aac aaa aca gct tgc atg tat ggt ggt gta acg tta cat Gly Thr Pro Asn Lys Thr Ala Cys Met Tyr Gly Val Thr Leu His 125 130 135	675
gat aat aat cga ttg acc gaa gag aaa aaa gtg ccg atc aat tta tgg Asp Asn Asn Arg Leu Thr Glu Glu Lys Lys Val Pro Ile Asn Leu Trp 140 145 150	723
cta gac ggt aaa caa aat aca gta cct ttg gaa acg gtt aaa acg aat Leu Asp Gly Lys Gln Asn Thr Val Pro Leu Glu Thr Val Lys Thr Asn 155 160 165 170	771
aag aaa aat gta act gtt cag gag ttg gat ctt caa gca aga cgt tat Lys Lys Asn Val Thr Val Gln Glu Leu Asp Leu Gln Ala Arg Arg Tyr 175 180 185	819
tta cag gaa aaa tat aat tta tat aac tct gat gtt ttt gat ggg aag Leu Gln Glu Lys Tyr Asn Leu Tyr Asn Ser Asp Val Phe Asp Gly Lys 190 195 200	867
gtt cag agg gga tta atc gtg ttt cat act tct aca gaa cct tcg gtt Val Gln Arg Gly Leu Ile Val Phe His Thr Ser Thr Glu Pro Ser Val 205 210 215	915
aat tac gat tta ttt ggt gct caa gga cag aat tca aat aca cta tta Asn Tyr Asp Leu Phe Gly Ala Gln Gly Gln Asn Ser Asn Thr Leu Leu 220 225 230	963
aga ata tat aga gat aat aaa acg att aac tct gaa aac atg cat att Arg Ile Tyr Arg Asp Asn Lys Thr Ile Asn Ser Glu Asn Met His Ile 235 240 245 250	1011
gat ata tat tta tat aca agt taaacatgg agttttgaac acgtaatgtt Asp Ile Tyr Leu Tyr Thr Ser 255	1062
cagattatta tgaaccgaga ataatctgaa agtttacaag cagaaaaaaa agtatatgtg ctataatatg ctttgagcaa gttggataga tggggctat ctgagtataa ggaggtgg cctatggtgg cattactgaa atcttagaa aggagacgcc taatgattac aatttagtacc aatgttgcag tttggtttat tccttattgc attgataggt ctagtaatca agcttattga	1122 1182 1242 1302

tcgccttatg aaacggata tattaaatg atagaaaatg agaatacgat ttggatgac 720  
 atgatgcctg caccaggaga taaatttgc caatctaaat attaatgtat gtacaatgac 780  
 aataaaatgg ttgattctaa agatgtgaag attgaagttt atcttacgac aaagaaaaag 840  
 tgaggatcca gacatgataa gataccttga tgagtttggaa caaacc 886

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 gccggatcct cacttttct ttgt 24

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 tatgaaagtt ttgtatgatg at 22

<210> 6 <211> 20 <212> DNA <213> Unknown <220> <223> Primer  
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 agtgacgagt taggtatct 20

<210> 7 <211> 1443 <212> DNA <213> Staphylococcus aureus <220>  
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 aatagagtaa aatgaaatc ttttattat attatagaca agtataaaaa aggtatagta 120  
 atatatgtat gtataagtaa ataatgataa ttctataatt attgtatata actaataatt 180  
 acttcgacaa aaataatcta ttatccaaat attttagata ataaaaagtt tgtatggaaat 240  
 tatgcttag aggtgagcaa a atg aaa aca gca ttt ata cta ctt tta 291  
 Met Lys Lys Thr Ala Phe Ile Leu Leu  
 1 5 10

ttc att gcc cta acg tgg aca aca agt cca ctt gta aat ggt agc gag 339  
 Phe Ile Ala Leu Thr Trp Thr Ser Pro Leu Val Asn Gly Ser Glu  
 15 20 25

aaa agc gaa ata aat gaa aaa gat ttg cga aaa aag tct gaa ttg 387  
 Lys Ser Glu Glu Ile Asn Glu Lys Asp Leu Arg Lys Lys Ser Glu Leu  
 30 35 40

cag gga gca gct tta ggc aat ctt aaa caa atc tat tat tac aat gaa 435  
 Gln Gly Ala Ala Leu Gly Asn Leu Lys Gln Ile Tyr Tyr Tyr Asn Glu  
 45 50 55

65

70

75

80

Ser Ile Ser Leu Ile Ile Phe Pro Ser Pro Tyr Tyr Ser Pro Ala Phe  
 85 90 95

Thr Lys Gly Glu Lys Val Asp Leu Asn Thr Lys Arg Thr Lys Lys Ser  
 100 105 110

Gln His Thr Ser Glu Gly Thr Tyr Ile His Phe Gln Ile Ser Gly Val  
 115 120 125

Thr Asn Thr Glu Lys Leu Pro Thr Pro Ile Glu Leu Pro Leu Lys Val  
 130 135 140

Lys Val His Gly Lys Asp Ser Pro Leu Lys Tyr Gly Pro Lys Phe Asp  
 145 150 155 160

Lys Lys Gln Leu Ala Ile Ser Thr Leu Asp Phe Glu Ile Arg His Gln  
 165 170 175

Leu Thr Gln Ile His Gly Leu Tyr Arg Ser Ser Asp Lys Thr Gly Gly  
 180 185 190

Tyr Trp Lys Ile Thr Met Asn Asp Gly Ser Thr Tyr Gln Ser Asp Leu  
 195 200 205

Ser Lys Lys Phe Glu Tyr Asn Thr Glu Lys Pro Pro Ile Asn Ile Asp  
 210 215 220

Glu Ile Lys Thr Ile Glu Ala Glu Ile Asn  
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<221> CDS <222> (79)..(831) <223>

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taaaatggag gaatatta atg gaa aac aat aaa gaa gta ttg aag aaa atg 111  
Met Glu Asn Asn Lys Glu Val Leu Lys Lys Met  
1 5 10

gta ttt ttt gtt tta atg aaa ttt ctt gga cta aca atc ttg cca aaa 159  
Val Phe Phe Val Leu Met Lys Phe Leu Gly Leu Thr Ile Leu Pro Lys  
15 20 25

ggt att tgt tca aca aga ccc aag ccc agc caa tta caa aga tct aat 207  
Gly Ile Cys Ser Thr Arg Pro Lys Pro Ser Gln Leu Gln Arg Ser Asn  
30 35 40

80	85	90	
agc cct gct ttt aca aaa ggg gaa aaa gtt gac tta aac aca aaa aga Ser Pro Ala Phe Thr Lys Gly Glu Lys Val Asp Leu Asn Thr Lys Arg 95	100	105	339
act aaa aaa agc caa cat act agc gaa gga act tat atc cat ttc caa Thr Lys Lys Ser Gln His Thr Ser Glu Gly Thr Tyr Ile His Phe Gln 110	115	120	387
ata agt ggc gtt aca aat act gaa aaa tta cct act cca ata gaa cta Ile Ser Gly Val Thr Asn Thr Glu Lys Leu Pro Thr Pro Ile Glu Leu 125	130	135	435
cct tta aaa gtt aag gtt cat ggt aaa gat agc ccc tta aag tat ggg Pro Leu Lys Val Lys Val His Gly Lys Asp Ser Pro Leu Lys Tyr Gly 145	150	155	483
cca aag ttc gat aaa aaa caa tta gct ata tca act tta gac ttt gaa Pro Lys Phe Asp Lys Lys Gln Leu Ala Ile Ser Thr Leu Asp Phe Glu 160	165	170	531
att cgt cat cag cta act caa ata cat gga tta tat cgt tca agc gat Ile Arg His Gln Leu Thr Gln Ile His Gly Leu Tyr Arg Ser Ser Asp 175	180	185	579
aaa acg ggt ggt tat tgg aaa ata aca atg aat gac gga tcc aca tat Lys Thr Gly Gly Tyr Trp Lys Ile Thr Met Asn Asp Gly Ser Thr Tyr 190	195	200	627
caa agt gat tta tct aaa aag ttt gaa tac aat act gaa aaa cca cct Gln Ser Asp Leu Ser Lys Lys Phe Glu Tyr Asn Thr Glu Lys Pro Pro 205	210	215	675
ata aat att gat gaa ata aaa act ata gaa gca gaa att aat taa Ile Asn Ile Asp Glu Ile Lys Thr Ile Glu Ala Glu Ile Asn 225	230		720
tttaccacctt t			731
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Leu Ala Thr Thr Ala Thr Asp Phe Thr Pro Val Pro Leu Ser Ser Asn 20 25 30			
Gln Ile Ile Lys Thr Ala Lys Ala Ser Thr Asn Asp Asn Ile Lys Asp 35 40 45			
Leu Leu Asp Trp Tyr Ser Ser Gly Ser Asp Thr Phe Thr Asn Ser Glu 50 55 60			
Val Leu Asp Asn Ser Leu Gly Ser Met Arg Ile Lys Asn Thr Asp Gly			

Ala Cys Met Tyr Gly Gly Val Thr Leu His Asp Asn Asn Arg Leu Thr  
 130 135 140

Glu Glu Lys Lys Val Pro Ile Asn Leu Trp Ile Asp Gly Lys Gln Thr  
 145 150 155 160

Thr Val Pro Ile Asp Lys Val Lys Thr Ser Lys Lys Glu Val Thr Val  
 165 170 175

Gln Glu Leu Asp Leu Gln Ala Arg His Tyr Leu His Gly Lys Phe Gly  
 180 185 190

Leu Tyr Asn Ser Asp Ser Phe Gly Gly Lys Val Gln Arg Gly Leu Ile  
 195 200 205

Val Phe His Ser Ser Glu Gly Ser Thr Val Ser Tyr Asp Leu Phe Asp  
 210 215 220

Ala Gln Gly Gln Tyr Pro Asp Thr Leu Leu Arg Ile Tyr Arg Asp Asn  
 225 230 235 240

Lys Thr Ile Asn Ser Glu Asn Leu  
 245

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 Met Asn Lys Leu Leu Met Asn Phe Phe Ile Val  
 1 5 10

agc cct ttg ttg ctt gcg aca act gct aca gat ttt acc cct gtt ccc 99  
 Ser Pro Leu Leu Ala Thr Thr Ala Thr Asp Phe Thr Pro Val Pro  
 15 20 25

tta tca tct aat caa ata atc aaa act gca aaa gca tct aca aac gat 147  
 Leu Ser Ser Asn Gln Ile Ile Lys Thr Ala Lys Ala Ser Thr Asn Asp  
 30 35 40

aat ata aag gat ttg cta gac tgg tat agt agt ggg tct gac act ttt 195  
 Asn Ile Lys Asp Leu Leu Asp Trp Tyr Ser Ser Gly Ser Asp Thr Phe  
 45 50 55 60

aca aat agt gaa gtt tta gat aat tcc tta gga tct atg cgt ata aaa 243  
 Thr Asn Ser Glu Val Leu Asp Asn Ser Leu Gly Ser Met Arg Ile Lys  
 65 70 75

aac aca gat ggc agc atc agc ttg ata att ttt ccg agt cct tat tat 291  
 Asn Thr Asp Gly Ser Ile Ser Leu Ile Ile Phe Pro Ser Pro Tyr Tyr

Glu Glu Lys Lys Val Pro Ile Asn Leu Trp Ile Asp Gly Lys Gln Thr			
145	150	155	160
aca gta cct ata gat aaa gtt aaa aca agc aaa aaa gaa gta act gtt			528
Thr Val Pro Ile Asp Lys Val Lys Thr Ser Lys Lys Glu Val Thr Val			
165	170	175	
caa gag cta gat ctt cag gca agg cat tat tta cac gga aaa ttt ggt			576
Gln Glu Leu Asp Leu Gln Ala Arg His Tyr Leu His Gly Lys Phe Gly			
180	185	190	
tta tat aac tca gac agc ttt ggc ggt aag gtg caa aga ggc ttg att			624
Leu Tyr Asn Ser Asp Ser Phe Gly Gly Lys Val Gln Arg Gly Leu Ile			
195	200	205	
gtg ttt cat tct tct gaa ggg tcc acg gta agt tat gat ttg ttt gat			672
Val Phe His Ser Ser Glu Gly Ser Thr Val Ser Tyr Asp Leu Phe Asp			
210	215	220	
gct caa ggg caa tat cca gat aca tta tta aga att tac aga gat aat			720
Ala Gln Gly Gln Tyr Pro Asp Thr Leu Leu Arg Ile Tyr Arg Asp Asn			
225	230	235	240
aaa act att aat tca gag aac ctc catattgatt tgtatttata cacaacttga			774
Lys Thr Ile Asn Ser Glu Asn Leu			
245			
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1	5	10	15
Thr Thr Ser Pro Leu Val Asn Gly Ser Glu Lys Ser Glu Glu Ile Asn			
20	25	30	
Glu Lys Asp Leu Arg Lys Lys Ser Glu Leu Gln Arg Asn Ala Leu Ser			
35	40	45	
Asn Leu Arg Gln Ile Tyr Tyr Asn Glu Lys Ala Ile Thr Glu Asn			
50	55	60	
Lys Glu Ser Asp Asp Gln Phe Leu Glu Asn Thr Leu Leu Phe Lys Gly			
65	70	75	80
Phe Phe Thr Gly His Pro Trp Tyr Asn Asp Leu Leu Val Asp Leu Gly			
85	90	95	
Ser Lys Asp Ala Thr Asn Lys Tyr Lys Gly Lys Lys Val Asp Leu Tyr			
100	105	110	
Gly Ala Tyr Tyr Gly Tyr Gln Cys Ala Gly Gly Thr Pro Asn Lys Thr			
115	120	125	

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Met	Glu	Asn	Asn	Lys	Glu	Val	Leu	Lys	Lys	Met	Val	Phe	Phe	Val	Leu
1				5				10						15	

Met	Lys	Phe	Leu	Gly	Leu	Thr	Ile	Leu	Pro	Lys	Gly	Ile	Cys	Ser	Thr
						20			25				30		

Arg	Pro	Lys	Pro	Ser	Gln	Leu	Gln	Arg	Ser	Asn	Leu	Val	Lys	Thr	Phe
						35		40					45		

Lys	Ile	Tyr	Ile	Phe	Phe	Met	Arg	Val	Thr	Leu	Val	Thr	His	Glu	Asn
						50			55			60			

Val	Lys	Ser	Val	Asp	Gln	Leu	Leu	Ser	His	Asp	Leu	Ile	Tyr	Asn	Val
65						70			75			80			

Ser	Gly	Pro	Asn	Tyr	Asp	Lys	Leu	Lys	Thr	Glu	Leu	Lys	Asn	Gln	Glu
						85		90				95			

Met	Ala	Thr	Leu	Phe	Lys	Asp	Lys	Asn	Val	Asp	Ile	Tyr	Gly	Val	Glu
						100			105			110			

Tyr	Tyr	His	Leu	Cys	Tyr	Leu	Cys	Glu	Asn	Ala	Glu	Arg	Ser	Ala	Cys
						115		120			125				

Leu	Tyr	Gly	Gly	Val	Thr	Asn	His	Glu	Gly	Asn	His	Leu	Glu	Ile	Pro
						130		135			140				

Lys	Lys	Ile	Val	Val	Lys	Val	Ser	Ile	Asp	Gly	Ile	Gln	Ser	Leu	Ser
145									150		155			160	

Phe	Asp	Ile	Glu	Gln	Ile	Lys	Asn	Gly	Asn	Cys	Ser	Arg	Ile	Ser	Tyr
						165			170			175			

Thr	Val	Arg	Lys	Tyr	Leu	Thr	Asp	Asn	Lys	Gln	Leu	Tyr	Thr	Asn	Gly
						180			185			190			

Pro	Ser	Lys	Tyr	Glu	Thr	Gly	Tyr	Ile	Lys	Phe	Ile	Pro	Lys	Asn	Lys
								195		200			205		

Glu	Ser	Phe	Trp	Phe	Asp	Phe	Phe	Pro	Glu	Pro	Glu	Phe	Thr	Gln	Ser
								210		215			220		

tta gtt aaa acc ttc aaa ata tat att ttc ttt atg agg gtg acc ctg Leu Val Lys Thr Phe Lys Ile Tyr Ile Phe Phe Met Arg Val Thr Leu 45 50 55	255
gtt act cac gag aat gtg aaa tct gtt gat caa ctt tta tca cac gat Val Thr His Glu Asn Val Lys Ser Val Asp Gln Leu Leu Ser His Asp 60 65 70 75	303
tta ata tat aat gtt tca ggg cca aat tat gat aaa tta aaa act gaa Leu Ile Tyr Asn Val Ser Gly Pro Asn Tyr Asp Lys Leu Lys Thr Glu 80 85 90	351
ctt aag aac caa gag atg gca act tta ttt aag gat aaa aac gtt gat Leu Lys Asn Gln Glu Met Ala Thr Leu Phe Lys Asp Lys Asn Val Asp 95 100 105	399
att tat ggt gta gaa tat tac cat ctc tgt tat tta tgt gaa aat gca Ile Tyr Gly Val Glu Tyr Tyr His Leu Cys Tyr Leu Cys Glu Asn Ala 110 115 120	447
gaa agg agt gca tgt ctc tac gga ggg gta aca aat cat gaa ggg aat Glu Arg Ser Ala Cys Leu Tyr Gly Val Thr Asn His Glu Gly Asn 125 130 135	495
cat tta gaa att cct aaa aag ata gtc gtt aaa gta tca atc gat ggt His Leu Glu Ile Pro Lys Lys Ile Val Val Lys Val Ser Ile Asp Gly 140 145 150 155	543
atc caa agc cta tca ttt gat att gaa caa ata aaa aat ggt aac tgc Ile Gln Ser Leu Ser Phe Asp Ile Glu Gln Ile Lys Asn Gly Asn Cys 160 165 170	591
tca aga att agc tat aca gtt aga aaa tat ctt aca gat aat aag caa Ser Arg Ile Ser Tyr Thr Val Arg Lys Tyr Leu Thr Asp Asn Lys Gln 175 180 185	639
cta tat act aat gga cct tct aaa tat gaa act gga tat ata aag ttc Leu Tyr Thr Asn Gly Pro Ser Lys Tyr Glu Thr Gly Tyr Ile Lys Phe 190 195 200	687
ata cct aag aat aaa gaa agt ttt tgg ttt gat ttt ttc cct gaa cca Ile Pro Lys Asn Lys Glu Ser Phe Trp Phe Asp Phe Phe Pro Glu Pro 205 210 215	735
gaa ttt actcaa tct aaa tat ctt atg ata tat aaa gat aat gaa acg Glu Phe Thr Gln Ser Lys Tyr Leu Met Ile Tyr Lys Asp Asn Glu Thr 220 225 230 235	783
ctt gac tca aac aca agc caa att gaa gtc tac cta aca acc aag taa Leu Asp Ser Asn Thr Ser Gln Ile Glu Val Tyr Leu Thr Thr Lys 240 245 250	831
cttttgcttt tggcaaccctt acctactgct ggattttagaa attttattgc aattctttta	891
ttaatgtaaa aacgctcatt tgatgagcgg ttttgtctta tctaaaggag ctttacctcc	951
taatgctgca aaattttaaa tggatatt ttgtatttgt cattgtattt gatgggtaat	1011
ccccatttttc gacagacatc	1031

Lys Tyr Leu Met Ile Tyr Lys Asp Asn Glu Thr Leu Asp Ser Asn Thr  
 225 230 235 · 240

Ser Gln Ile Glu Val Tyr Leu Thr Thr Lys  
245 250

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<210> 22 <211> 21 <212> DNA <213> Unknown <220> <223> Primer

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<400> 24  
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<400> 25 ggggtacccc gaaggagggaa aaaaaaatgt ctacaaacga taatataaag 50

<210> 26 <211> 42 <212> DNA <213> Unknown <220> <223> Primer

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<210> 27 <211> 1612 <212> DNA <213> Escherichia coli <220> <221>  
CDS <222> (200)..(1159) <223>

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 Leu Leu Leu Gly Phe Ser Ser Val Ser Tyr Ser Arg Glu Phe Thr Ile

15	20	25	
gac ttt tcg acc caa caa agt tat gtc tct tcg tta aat agt ata cgg Asp Phe Ser Thr Gln Gln Ser Tyr Val Ser Ser Leu Asn Ser Ile Arg 30	35	40	328
aca gag ata tcg acc cct ctt gaa cat ata tct cag ggg acc aca tcg Thr Glu Ile Ser Thr Pro Leu Glu His Ile Ser Gln Gly Thr Thr Ser 45	50	55	376
gtg tct gtt att aac cac acc cca ccg ggc agt tat ttt gct gtg gat Val Ser Val Ile Asn His Thr Pro Pro Gly Ser Tyr Phe Ala Val Asp 60	65	70	424
ata cga ggg ctt gat gtc tat cag gcg cgt ttt gac cat ctt cgt ctg Ile Arg Gly Leu Asp Val Tyr Gln Ala Arg Phe Asp His Leu Arg Leu 80	85	90	472
att att gag caa aat aat tta tat gtg gcc ggg ttc gtt aat acg gca Ile Ile Glu Gln Asn Asn Leu Tyr Val Ala Gly Phe Val Asn Thr Ala 95	100	105	520
aca aat act ttc tac cgt ttt tca gat ttt aca cat ata tca gtg ccc Thr Asn Thr Phe Tyr Arg Phe Ser Asp Phe Thr His Ile Ser Val Pro 110	115	120	568
ggg gtt gca acg gtt tcc atg aca acg gac agc agt tat acc act ctg Gly Val Thr Thr Val Ser Met Thr Thr Asp Ser Ser Tyr Thr Thr Leu 125	130	135	616
caa cgt gtc gca gcg ctg gaa cgt tcc gga atg caa atc agt cgt cac Gln Arg Val Ala Ala Leu Glu Arg Ser Gly Met Gln Ile Ser Arg His 140	145	150	664
tca ctg gtt tca tca tat ctg gcg tta atg gag ttc agt ggt aat aca Ser Leu Val Ser Ser Tyr Leu Ala Leu Met Glu Phe Ser Gly Asn Thr 160	165	170	712
atg acc aga gat gca tcc aga gca gtt ctg cgt ttt gtc act gtc aca Met Thr Arg Asp Ala Ser Arg Ala Val Leu Arg Phe Val Thr Val Thr 175	180	185	760
gca gaa gcc tta cgc ttc agg cag ata cag aga gaa ttt cgt cag gca Ala Glu Ala Leu Arg Phe Arg Gln Ile Gln Arg Glu Phe Arg Gln Ala 190	195	200	808
ctg tct gaa act gct cct gtg tat acg atg acg ccg gga gac gtg gac Leu Ser Glu Thr Ala Pro Val Tyr Thr Met Thr Pro Gly Asp Val Asp 205	210	215	856
ctc act ctg aac tgg ggg cga atc agc aat gtg ctt ccg gag tat cgg Leu Thr Leu Asn Trp Gly Arg Ile Ser Asn Val Leu Pro Glu Tyr Arg 220	225	230	904
gga gag gat ggt gtc aga gtg ggg aga ata tcc ttt aat aat ata tca Gly Glu Asp Gly Val Arg Val Gly Arg Ile Ser Phe Asn Asn Ile Ser 240	245	250	952
gcg ata ctg ggg act gtg gcc gtt ata ctg aat tgc cat cat cag ggg Ala Ile Leu Gly Thr Val Ala Val Ile Leu Asn Cys His His Gln Gly			1000

255	260	265	
gcg cgt tct gtt cgc gcc gtg aat gaa gag agt caa cca gaa tgt cag Ala Arg Ser Val Arg Ala Val Asn Glu Glu Ser Gln Pro Glu Cys Gln 270	275	280	1048
ata act ggc gac agg cct gtt ata aaa ata aac aat aca tta tgg gaa Ile Thr Gly Asp Arg Pro Val Ile Lys Ile Asn Asn Thr Leu Trp Glu 285	290	295	1096
agt aat aca gct gca gcg ttt ctg aac aga aag tca cag ttt tta tat Ser Asn Thr Ala Ala Phe Leu Asn Arg Lys Ser Gln Phe Leu Tyr 300	305	310	1144
aca acg ggt aaa taa aggagttaag catgaagaag atgttatgg cggtttatt Thr Thr Gly Lys			1199
tgcatggact tctgttaatg caatggcggc ggatttgct aaaggtaaaa ttgagtttc caagtataat gaggatgaca catttacagt gaagggttgcac gggaaagaat actggaccag tcgctggaat ctgcaaccgt tactgcaaag tgctcagttt acaggaatga ctgtcacaat caaattccagt acctgtgaat caggctccgg atttgctgaa gtgcagtttataatgactg aggcataacc tgattcgtgg tatgtggta acaagtgtaa tctgtgtcac aattcagtca gttgacagtt gcctgtcaga ctgagcattt gttaaaaaaaaa ttccatgg tgaatcccc tgtgtggagg ggcgactggg gaaaaatccc tgcttgat tcattatcga cac			1259
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Ser Ser Val Ser Tyr Ser Arg Glu Phe Thr Ile Asp Phe Ser Thr Gln 20 25 30			
Gln Ser Tyr Val Ser Ser Leu Asn Ser Ile Arg Thr Glu Ile Ser Thr 35 40 45			
Pro Leu Glu His Ile Ser Gln Gly Thr Thr Ser Val Ser Val Ile Asn 50 55 60			
His Thr Pro Pro Gly Ser Tyr Phe Ala Val Asp Ile Arg Gly Leu Asp 65 70 75 80			
Val Tyr Gln Ala Arg Phe Asp His Leu Arg Leu Ile Ile Glu Gln Asn 85 90 95			
Asn Leu Tyr Val Ala Gly Phe Val Asn Thr Ala Thr Asn Thr Phe Tyr			

100	105	110
Asp Phe Thr His Ile Ser Val Pro Gly Val Thr Thr Val		
120	125	
Thr Asp Ser Ser Tyr Thr Thr Leu Gln Arg Val Ala Ala		
135	140	
Ser Gly Met Gln Ile Ser Arg His Ser Leu Val Ser Ser		
150	155	160
Leu Met Glu Phe Ser Gly Asn Thr Met Thr Arg Asp Ala		
165	170	175
Val Leu Arg Phe Val Thr Val Thr Ala Glu Ala Leu Arg		
180	185	190
Ile Gln Arg Glu Phe Arg Gln Ala Leu Ser Glu Thr Ala		
200	205	
Thr Met Thr Pro Gly Asp Val Asp Leu Thr Leu Asn Trp		
215	220	
Ser Asn Val Leu Pro Glu Tyr Arg Gly Glu Asp Gly Val		
230	235	240
Arg Ile Ser Phe Asn Asn Ile Ser Ala Ile Leu Gly Thr		
245	250	255
Ile Leu Asn Cys His His Gln Gly Ala Arg Ser Val Arg		
260	265	270
Glu Glu Ser Gln Pro Glu Cys Gln Ile Thr Gly Asp Arg		
280	285	
Lys Ile Asn Asn Thr Leu Trp Glu Ser Asn Thr Ala Ala		
295	300	
Asn Arg Lys Ser Gln Phe Leu Tyr Thr Thr Gly Lys		
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Ile		

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tagaaataaaa aaccgcagca gacaactgac aacatcaa at gaaggggct tattctaatt 120  
gatattattt atatgataat agttcatttt gtattttgt ttttttgat attctcacct 180  
gcttagttac aataaatcaa ttctatcgct gtatggtata gactgttta ttatataatt 240  
tgaatatttt taatctgccc agtctggttt tttaaaaaag tgctatccctc ttaatgtctt 300  
tactaaatta gaaaacaagt ttcaacttca actattgcat cttaattaa tggtaaggt 360  
gatttcaa at gctcggttgt ggccagttat acctcaaata actcaagttg ttgagcacag 420  
ccaacgcaca tgcagttga cgtatgacag gtatgcttta ttcatattaa att atg 476  
Met 1

atg gtt ttc cag cca atc agt gag ttt ctc ttg ata agg aat gcg gga 524  
Met Val Phe Gln Pro Ile Ser Glu Phe Leu Leu Ile Arg Asn Ala Gly  
5 10 15

atg tct atg tat ttt aat aaa ata att tca ttt aat att att tca cga 572  
Met Ser Met Tyr Phe Asn Lys Ile Ile Ser Phe Asn Ile Ile Ser Arg  
20 25 30

ata gtt att tgt atc ttt ttg ata tgt gga atg ttc atg gct ggg gct 620  
Ile Val Ile Cys Ile Phe Leu Ile Cys Gly Met Phe Met Ala Gly Ala  
35 40 45

tca gaa aaa tat gat gct aac gca ccg caa cag gtc cag cct tat tct 668  
Ser Glu Lys Tyr Asp Ala Asn Ala Pro Gln Gln Val Gln Pro Tyr Ser  
50 55 60 65

gtc tct tca tct gca ttt gaa aat ctc cat cct aat aat gaa atg gag 716  
Val Ser Ser Ala Phe Glu Asn Leu His Pro Asn Asn Glu Met Glu  
70 75 80

agt tca atc aat ccc ttt tcc gca tcg gat aca gaa aga aat gct gca 764  
Ser Ser Ile Asn Pro Phe Ser Ala Ser Asp Thr Glu Arg Asn Ala Ala  
85 90 95

ata ata gat cgc gcc aat aag gag cag gag act gaa gcg gtg aat aag 812

Ile Ile Asp Arg Ala Asn Lys Glu Gln Glu Thr Glu Ala Val Asn Lys		
100	105	110
atg ata agc acc ggg gcc agg tta gct gca tca ggc agg gca tct gat		860
Met Ile Ser Thr Gly Ala Arg Leu Ala Ala Ser Gly Arg Ala Ser Asp		
115	120	125
gtt gct cac tca atg gtg ggc gat gcg gtt aat caa gaa atc aaa cag		908
Val Ala His Ser Met Val Gly Asp Ala Val Asn Gln Glu Ile Lys Gln		
130	135	140
tgg tta aat cga ttc ggt acg gct caa gtt aat ctg aat ttt gac aaa		956
Trp Leu Asn Arg Phe Gly Thr Ala Gln Val Asn Leu Asn Phe Asp Lys		
150	155	160
aat ttt tcg cta aaa gaa agc tct ctt gat tgg ctg gct cct tgg tat		1004
Asn Phe Ser Leu Lys Glu Ser Ser Leu Asp Trp Leu Ala Pro Trp Tyr		
165	170	175
gac tct gct tca ttc ctc ttt ttt agt cag tta ggt att cgc aat aaa		1052
Asp Ser Ala Ser Phe Leu Phe Ser Gln Leu Gly Ile Arg Asn Lys		
180	185	190
gac agc cgc aac aca ctt aac ctt ggc gtc ggg ata cgt aca ttg gag		1100
Asp Ser Arg Asn Thr Leu Asn Leu Gly Val Gly Ile Arg Thr Leu Glu		
195	200	205
aac ggt tgg ctg tac gga ctt aat act ttt tat gat aat gat ttg acc		1148
Asn Gly Trp Leu Tyr Gly Leu Asn Thr Phe Tyr Asp Asn Asp Leu Thr		
210	215	220
225		
ggc cac aac cac cgt atc ggt ctt ggt gcc gag gcc tgg acc gat tat		1196
Gly His Asn His Arg Ile Gly Leu Gly Ala Glu Ala Trp Thr Asp Tyr		
230	235	240
tta cag ttg gct gcc aat ggg tat ttt cgc ctc aat gga tgg cac tcg		1244
Leu Gln Leu Ala Ala Asn Gly Tyr Phe Arg Leu Asn Gly Trp His Ser		
245	250	255
tcg cgt gat ttc tcc gac tat aaa gag cgc cca gcc act ggg ggg gat		1292
Ser Arg Asp Phe Ser Asp Tyr Lys Glu Arg Pro Ala Thr Gly Asp		
260	265	270
ttg cgc gcg aat gct tat tta cct gca ctc cca caa ctg ggg ggg aag		1340
Leu Arg Ala Asn Ala Tyr Leu Pro Ala Leu Pro Gln Leu Gly Gly Lys		
275	280	285
ttg atg tat gag caa tac acc ggt gag cgt gtt gct tta ttt ggt aaa		1388
Leu Met Tyr Glu Gln Tyr Thr Gly Glu Arg Val Ala Leu Phe Gly Lys		
290	295	300
305		
gat aat ctg caa cgc aac cct tat gcc gtg act gcc ggg atc aat tac		1436
Asp Asn Leu Gln Arg Asn Pro Tyr Ala Val Thr Ala Gly Ile Asn Tyr		
310	315	320
acc ccc gtg cct cta ctc act gtc ggg gta gat cag cgt atg ggg aaa		1484
Thr Pro Val Pro Leu Leu Thr Val Gly Val Asp Gln Arg Met Gly Lys		
325	330	335
agc agt aag cat gaa aca cag tgg aac ctc caa atg aac tat cgc ctg		1532

Ser Ser Lys His Glu Thr Gln Trp Asn Leu Gln Met Asn Tyr Arg Leu		
340	345	350
ggc gag agt ttt cag tcg caa ctt agc cct tca gcg gtg gca gga aca		1580
Gly Glu Ser Phe Gln Ser Gln Leu Ser Pro Ser Ala Val Ala Gly Thr		
355	360	365
cgt cta ctg gcg gag agc cgc tat aac ctt gtc gat cgt aac aat aat		1628
Arg Leu Leu Ala Glu Ser Arg Tyr Asn Leu Val Asp Arg Asn Asn Asn		
370	375	380
atc gtg ttg gag tat cag aaa cag cag gtg gtt aaa ctg aca tta tcg		1676
Ile Val Leu Glu Tyr Gln Lys Gln Gln Val Val Lys Leu Thr Leu Ser		
390	395	400
cca gca act atc tcc ggc ctg ccg ggt cag gtt tat cag gtg aac gca		1724
Pro Ala Thr Ile Ser Gly Leu Pro Gly Gln Val Tyr Gln Val Asn Ala		
405	410	415
caa gta caa ggg gca tct gct gta agg gaa att gtc tgg agt gat gcc		1772
Gln Val Gln Gly Ala Ser Ala Val Arg Glu Ile Val Trp Ser Asp Ala		
420	425	430
gaa ctg att gcc gct ggc ggc aca tta aca cca ctg agt acc aca caa		1820
Glu Leu Ile Ala Ala Gly Gly Thr Leu Thr Pro Leu Ser Thr Thr Gln		
435	440	445
ttc aac ttg gtt tta ccg cct tat aaa cgc aca gca caa gtg agt cgg		1868
Phe Asn Leu Val Leu Pro Pro Tyr Lys Arg Thr Ala Gln Val Ser Arg		
450	455	460
465		
gta acg gac gac ctg aca gcc aac ttt tat tcg ctt agt gcg ctc gcg		1916
Val Thr Asp Asp Leu Thr Ala Asn Phe Tyr Ser Leu Ser Ala Leu Ala		
470	475	480
gtt gat cac caa gga aac cga tct aac tca ttc aca ttg agc gtc acc		1964
Val Asp His Gln Gly Asn Arg Ser Asn Ser Phe Thr Leu Ser Val Thr		
485	490	495
gtt cag cag cct cag ttg aca tta acg gcg gcc gtc att ggt gat ggc		2012
Val Gln Gln Pro Gln Leu Thr Leu Thr Ala Ala Val Ile Gly Asp Gly		
500	505	510
gca ccg gct aat ggg aaa act gca atc acc gtt gag ttc acc gtt gct		2060
Ala Pro Ala Asn Gly Lys Thr Ala Ile Thr Val Glu Phe Thr Val Ala		
515	520	525
gat ttt gag ggg aaa ccc tta gcc ggg cag gag gtg gtg ata acc acc		2108
Asp Phe Glu Gly Lys Pro Leu Ala Gly Gln Glu Val Val Ile Thr Thr		
530	535	540
545		
aat aat ggt gcg cta ccg aat aaa atc acg gaa aag aca gat gca aat		2156
Asn Asn Gly Ala Leu Pro Asn Lys Ile Thr Glu Lys Thr Asp Ala Asn		
550	555	560
ggc gtc gcg cgc att gca tta acc aat acg aca gat ggc gtg acg gta		2204
Gly Val Ala Arg Ile Ala Leu Thr Asn Thr Thr Asp Gly Val Thr Val		
565	570	575
gtc aca gca gaa gtg gag ggg caa cgg caa agt gtt gat acc cac ttt		2252

Val Thr Ala Glu Val Glu Gly Gln Arg Gln Ser Val Asp Thr His Phe		
580	585	590
gtt aag ggt act atc gct gct gat aaa tcc act ctg gct gct gta ccg		2300
Val Lys Gly Thr Ile Ala Ala Asp Lys Ser Thr Leu Ala Ala Val Pro		
595	600	605
aca tct atc atc gct gat ggt cta atg gct tca acc atc acg ttg gag		2348
Thr Ser Ile Ile Ala Asp Gly Leu Met Ala Ser Thr Ile Thr Leu Glu		
610	615	620
ttg aag gat acc tat ggg gac ccg cag gct ggc gct aat gtg gct ttt		2396
Leu Lys Asp Thr Tyr Gly Asp Pro Gln Ala Gly Ala Asn Val Ala Phe		
630	635	640
gac aca acc tta ggc aat atg ggc gtt atc acg gat cac aat gac ggc		2444
Asp Thr Thr Leu Gly Asn Met Gly Val Ile Thr Asp His Asn Asp Gly		
645	650	655
act tat agc gca cca ttg acc agt acc acg ttg ggg gta gca aca gta		2492
Thr Tyr Ser Ala Pro Leu Thr Ser Thr Leu Gly Val Ala Thr Val		
660	665	670
acg gtg aaa gtg gat ggg gct gcg ttc agt gtg ccg agt gtg acg gtt		2540
Thr Val Lys Val Asp Gly Ala Ala Phe Ser Val Pro Ser Val Thr Val		
675	680	685
aat ttc acg gca gat cct att cca gat gct ggc ccg tcc agt ttc acc		2588
Asn Phe Thr Ala Asp Pro Ile Pro Asp Ala Gly Arg Ser Ser Phe Thr		
690	695	700
705		
gtc tcc aca ccg gat atc ttg gct gat ggc acg atg agt tcc aca tta		2636
Val Ser Thr Pro Asp Ile Leu Ala Asp Gly Thr Met Ser Ser Thr Leu		
710	715	720
tcc ttt gtc cct gtc gat aag aat ggc cat ttt atc agt ggg atg cag		2684
Ser Phe Val Pro Val Asp Lys Asn Gly His Phe Ile Ser Gly Met Gln		
725	730	735
ggc ttg agt ttt actcaa aac ggt gtg ccg gtg agt att agc ccc att		2732
Gly Leu Ser Phe Thr Gln Asn Gly Val Pro Val Ser Ile Ser Pro Ile		
740	745	750
acc gag cag cca gat agc tat acc gcg acg gtg gtt ggg aat agt gtc		2780
Thr Glu Gln Pro Asp Ser Tyr Thr Ala Thr Val Val Gly Asn Ser Val		
755	760	765
ggt gat gtc aca atc acg ccg cag gtt gat acc ctg ata ctg agt aca		2828
Gly Asp Val Thr Ile Thr Pro Gln Val Asp Thr Leu Ile Leu Ser Thr		
770	775	780
785		
ttg cag aaa aaa ata tcc cta ttc ccg gta cct acg ctg acc ggt att		2876
Leu Gln Lys Lys Ile Ser Leu Phe Pro Val Pro Thr Leu Thr Gly Ile		
790	795	800
ctg gtt aac ggg caa aat ttc gct acg gat aaa ggg ttc ccg aaa acg		2924
Leu Val Asn Gly Gln Asn Phe Ala Thr Asp Lys Gly Phe Pro Lys Thr		
805	810	815
atc ttt aaa aac gcc aca ttc cag tta cag atg gat aac gat gtt gct		2972

Ile Phe Lys Asn Ala Thr Phe Gln Leu Gln Met Asp Asn Asp Val Ala			
820	825	830	
aat aat act cag tat gag tgg tcg tcg tca ttc aca ccc aat gta tcg		3020	
Asn Asn Thr Gln Tyr Glu Trp Ser Ser Ser Phe Thr Pro Asn Val Ser			
835	840	845	
gtt aac gat cag ggt cag gtg acg att acc tac caa acc tat agc gaa		3068	
Val Asn Asp Gln Gly Gln Val Thr Ile Thr Tyr Gln Thr Tyr Ser Glu			
850	855	860	865
gtg gct gtg acg gcg aaa agt aaa aac ttc cca agt tat tcg gtg agt		3116	
Val Ala Val Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Ser Val Ser			
870	875	880	
tat cgg ttc tac cca aat cgg tgg ata tac gat ggc ggc aga tcg ctg		3164	
Tyr Arg Phe Tyr Pro Asn Arg Trp Ile Tyr Asp Gly Gly Arg Ser Leu			
885	890	895	
gta tcc agt ctc gag gcc agc aga caa tgc caa ggt tca gat atg tct		3212	
Val Ser Ser Leu Glu Ala Ser Arg Gln Cys Gln Gly Ser Asp Met Ser			
900	905	910	
gcg gtt ctt gaa tcc tca cgt gca acc aac gga acg cgt gcg cct gac		3260	
Ala Val Leu Glu Ser Ser Arg Ala Thr Asn Gly Thr Arg Ala Pro Asp			
915	920	925	
ggg aca ttg tgg ggc gag tgg ggg agc ttg acc ggc acg tat agt tct gat		3308	
Gly Thr Leu Trp Gly Glu Trp Gly Ser Leu Thr Ala Tyr Ser Ser Asp			
930	935	940	945
tgg caa tct ggt gaa tat tgg gtc aaa aag acc agc acg gat ttt gaa		3356	
Trp Gln Ser Gly Glu Tyr Trp Val Lys Lys Thr Ser Thr Asp Phe Glu			
950	955	960	
acc atg aat atg gac aca ggc gca ctg caa cca ggg cct gca tac ttg		3404	
Thr Met Asn Met Asp Thr Gly Ala Leu Gln Pro Gly Pro Ala Tyr Leu			
965	970	975	
gcg ttc ccg ctc tgt gcg ctg tca ata taa ccagataaca gatagcaata		3454	
Ala Phe Pro Leu Cys Ala Leu Ser Ile			
980	985		
agaacagttt aatgagctga ttatttgggg cgcgaaatggg agtccggcaa tcctagactc		3514	
gccccataag tagcaaacgt ccagaagaac aacgcccgtc aggttaattg agcggcgctg		3574	
ttttttaaa aggattgtcg cgattaaatg ccgatcttac ggcccaggat attggcacct		3634	
ttagcctgac catcagggcc atagagcgat tggccgtggc gggtattcag gactgccaat		3694	
gcttgattat tatgttcaat atgttgtgt aacagtaacc cattgtgcag gttgctgtaa		3754	
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atcc		3938	

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Gly Met Ser Met Tyr Phe Asn Lys Ile Ile Ser Phe Asn Ile Ile Ser  
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Arg Ile Val Ile Cys Ile Phe Leu Ile Cys Gly Met Phe Met Ala Gly  
35 40 45

Ala Ser Glu Lys Tyr Asp Ala Asn Ala Pro Gln Gln Val Gln Pro Tyr  
50 55 60

Ser Val Ser Ser Ser Ala Phe Glu Asn Leu His Pro Asn Asn Glu Met  
65 70 75 80

Glu Ser Ser Ile Asn Pro Phe Ser Ala Ser Asp Thr Glu Arg Asn Ala  
85 90 95

Ala Ile Ile Asp Arg Ala Asn Lys Glu Gln Glu Thr Glu Ala Val Asn  
100 105 110

Lys Met Ile Ser Thr Gly Ala Arg Leu Ala Ala Ser Gly Arg Ala Ser  
115 120 125

Asp Val Ala His Ser Met Val Gly Asp Ala Val Asn Gln Glu Ile Lys  
130 135 140

Gln Trp Leu Asn Arg Phe Gly Thr Ala Gln Val Asn Leu Asn Phe Asp  
145 150 155 160

Lys Asn Phe Ser Leu Lys Glu Ser Ser Leu Asp Trp Leu Ala Pro Trp  
165 170 175

Tyr Asp Ser Ala Ser Phe Leu Phe Ser Gln Leu Gly Ile Arg Asn  
180 185 190

Lys Asp Ser Arg Asn Thr Leu Asn Leu Gly Val Gly Ile Arg Thr Leu  
195 200 205

Glu Asn Gly Trp Leu Tyr Gly Leu Asn Thr Phe Tyr Asp Asn Asp Leu  
210 215 220

Thr Gly His Asn His Arg Ile Gly Leu Gly Ala Glu Ala Trp Thr Asp  
225 230 235 240

Tyr Leu Gln Leu Ala Ala Asn Gly Tyr Phe Arg Leu Asn Gly Trp His  
245 250 255

Ser Ser Arg Asp Phe Ser Asp Tyr Lys Glu Arg Pro Ala Thr Gly Gly  
260 265 270

Asp Leu Arg Ala Asn Ala Tyr Leu Pro Ala Leu Pro Gln Leu Gly Gly  
275 280 285

Lys Leu Met Tyr Glu Gln Tyr Thr Gly Glu Arg Val Ala Leu Phe Gly  
290 295 300

Lys Asp Asn Leu Gln Arg Asn Pro Tyr Ala Val Thr Ala Gly Ile Asn  
305 310 315 320

Tyr Thr Pro Val Pro Leu Leu Thr Val Gly Val Asp Gln Arg Met Gly  
325 330 335

Lys Ser Ser Lys His Glu Thr Gln Trp Asn Leu Gln Met Asn Tyr Arg  
340 345 350

Leu Gly Glu Ser Phe Gln Ser Gln Leu Ser Pro Ser Ala Val Ala Gly  
355 360 365

Thr Arg Leu Leu Ala Glu Ser Arg Tyr Asn Leu Val Asp Arg Asn Asn  
370 375 380

Asn Ile Val Leu Glu Tyr Gln Lys Gln Gln Val Val Lys Leu Thr Leu  
385 390 395 400

Ser Pro Ala Thr Ile Ser Gly Leu Pro Gly Gln Val Tyr Gln Val Asn  
405 410 415

Ala Gln Val Gln Gly Ala Ser Ala Val Arg Glu Ile Val Trp Ser Asp  
420 425 430

Ala Glu Leu Ile Ala Ala Gly Gly Thr Leu Thr Pro Leu Ser Thr Thr  
435 440 445

Gln Phe Asn Leu Val Leu Pro Pro Tyr Lys Arg Thr Ala Gln Val Ser  
450 455 460

Arg Val Thr Asp Asp Leu Thr Ala Asn Phe Tyr Ser Leu Ser Ala Leu  
 465 470 475 480

Ala Val Asp His Gln Gly Asn Arg Ser Asn Ser Phe Thr Leu Ser Val  
 485 490 495

Thr Val Gln Gln Pro Gln Leu Thr Leu Thr Ala Ala Val Ile Gly Asp  
 500 505 510

Gly Ala Pro Ala Asn Gly Lys Thr Ala Ile Thr Val Glu Phe Thr Val  
 515 520 525

Ala Asp Phe Glu Gly Lys Pro Leu Ala Gly Gln Glu Val Val Ile Thr  
 530 535 540

Thr Asn Asn Gly Ala Leu Pro Asn Lys Ile Thr Glu Lys Thr Asp Ala  
 545 550 555 560

Asn Gly Val Ala Arg Ile Ala Leu Thr Asn Thr Thr Asp Gly Val Thr  
 565 570 575

Val Val Thr Ala Glu Val Glu Gly Gln Arg Gln Ser Val Asp Thr His  
 580 585 590

Phe Val Lys Gly Thr Ile Ala Ala Asp Lys Ser Thr Leu Ala Ala Val  
 595 600 605

Pro Thr Ser Ile Ile Ala Asp Gly Leu Met Ala Ser Thr Ile Thr Leu  
 610 615 620

Glu Leu Lys Asp Thr Tyr Gly Asp Pro Gln Ala Gly Ala Asn Val Ala  
 625 630 635 640

Phe Asp Thr Thr Leu Gly Asn Met Gly Val Ile Thr Asp His Asn Asp  
 645 650 655

Gly Thr Tyr Ser Ala Pro Leu Thr Ser Thr Thr Leu Gly Val Ala Thr  
 660 665 670

Val Thr Val Lys Val Asp Gly Ala Ala Phe Ser Val Pro Ser Val Thr  
 675 680 685

Val Asn Phe Thr Ala Asp Pro Ile Pro Asp Ala Gly Arg Ser Ser Phe  
 690 695 700

Thr Val Ser Thr Pro Asp Ile Leu Ala Asp Gly Thr Met Ser Ser Thr  
 705 710 715 720

Leu Ser Phe Val Pro Val Asp Lys Asn Gly His Phe Ile Ser Gly Met  
 725 730 735

Gln Gly Leu Ser Phe Thr Gln Asn Gly Val Pro Val Ser Ile Ser Pro  
 740 745 750

Ile Thr Glu Gln Pro Asp Ser Tyr Thr Ala Thr Val Val Gly Asn Ser  
 755 760 765

Val Gly Asp Val Thr Ile Thr Pro Gln Val Asp Thr Leu Ile Leu Ser  
 770 775 780

Thr Leu Gln Lys Lys Ile Ser Leu Phe Pro Val Pro Thr Leu Thr Gly  
 785 790 795 800

Ile Leu Val Asn Gly Gln Asn Phe Ala Thr Asp Lys Gly Phe Pro Lys  
 805 810 815

Thr Ile Phe Lys Asn Ala Thr Phe Gln Leu Gln Met Asp Asn Asp Val  
 820 825 830

Ala Asn Asn Thr Gln Tyr Glu Trp Ser Ser Ser Phe Thr Pro Asn Val  
 835 840 845

Ser Val Asn Asp Gln Gly Gln Val Thr Ile Thr Tyr Gln Thr Tyr Ser  
 850 855 860

Glu Val Ala Val Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Ser Val  
 865 870 875 880

Ser Tyr Arg Phe Tyr Pro Asn Arg Trp Ile Tyr Asp Gly Gly Arg Ser  
 885 890 895

Leu Val Ser Ser Leu Glu Ala Ser Arg Gln Cys Gln Gly Ser Asp Met  
 900 905 910

Ser Ala Val Leu Glu Ser Ser Arg Ala Thr Asn Gly Thr Arg Ala Pro  
 915 920 925

Asp Gly Thr Leu Trp Gly Glu Trp Gly Ser Leu Thr Ala Tyr Ser Ser  
 930 935 940

Asp Trp Gln Ser Gly Glu Tyr Trp Val Lys Lys Thr Ser Thr Asp Phe  
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Glu Thr Met Asn Met Asp Thr Gly Ala Leu Gln Pro Gly Pro Ala Tyr  
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ctgaccataa aggaacccaa at atg aaa aaa gca ctt gcc aca ctg att gcc Met Lys Lys Ala Leu Ala Thr Leu Ile Ala	172
1 5 10	

ctc gct ctc ccg gcc gca ctg gcg gaa ggc gca tcc ggc ttt tac Leu Ala Leu Pro Ala Ala Leu Ala Glu Gly Ala Ser Gly Phe Tyr	220
15 20 25	

gtc caa gcc gat gcc gca cac gca aaa gcc tca agc tct tta ggt tct Val Gln Ala Asp Ala Ala His Ala Lys Ala Ser Ser Ser Leu Gly Ser	268
30 35 40	

gcc aaa ggc ttc agc ccg cgc atc tcc gca ggc tac cgc atc aac gac Ala Lys Gly Phe Ser Pro Arg Ile Ser Ala Gly Tyr Arg Ile Asn Asp	316
45 50 55	

ctc cgc ttc gcc gtc gat tac acg cgc tac aaa aac tat aaa gcc cca Leu Arg Phe Ala Val Asp Tyr Thr Arg Tyr Lys Asn Tyr Lys Ala Pro	364
60 65 70	

tcc acc gat ttc aaa ctt tac agc atc ggc gcg tcc gcc att tac gac	412
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Ser Thr Asp Phe Lys Leu Tyr Ser Ile Gly Ala Ser Ala Ile Tyr Asp			
75	80	85	90
ttc gac acc caa tcg ccc gtc aaa ccg tat ctc ggc gcg cgc ttg agc			460
Phe Asp Thr Gln Ser Pro Val Lys Pro Tyr Leu Gly Ala Arg Leu Ser			
95	100	105	
ctc aac cgc gcc tcc gtc gac ttg ggc ggc agc gac agc ttc agc caa			508
Leu Asn Arg Ala Ser Val Asp Leu Gly Gly Ser Asp Ser Phe Ser Gln			
110	115	120	
acc tcc atc ggc ctc ggc gta ttg acg ggc gta agc tat gcc gtt acc			556
Thr Ser Ile Gly Leu Gly Val Leu Thr Gly Val Ser Tyr Ala Val Thr			
125	130	135	
ccg aat gtc gat ttg gat gcc ggc tac cgc tac aac tac atc ggc aaa			604
Pro Asn Val Asp Leu Asp Ala Gly Tyr Arg Tyr Asn Tyr Ile Gly Lys			
140	145	150	
gtc aac act gtc aaa aac gtc cgt tcc ggc gaa ctg tcc gtc ggc gtg			652
Val Asn Thr Val Lys Asn Val Arg Ser Gly Glu Leu Ser Val Gly Val			
155	160	165	170
cgc gtc aaa ttc tga tatgcgcctt attctgcaaa ccggcggagcc ttccggcggtt			707
Arg Val Lys Phe			
ttgtttctg ccacccgcaac tacacaagcc ggcggtttg tacgataatc ccgaatgctg			767
cggcttctgc cgccctattt tttgaggaat ccgaaatgtc caaaaaccatc atccacacccg			827
aca			830
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His Ala Lys Ala Ser Ser Ser Leu Gly Ser Ala Lys Gly Phe Ser Pro			
35	40	45	
Arg Ile Ser Ala Gly Tyr Arg Ile Asn Asp Leu Arg Phe Ala Val Asp			
50	55	60	
Tyr Thr Arg Tyr Lys Asn Tyr Lys Ala Pro Ser Thr Asp Phe Lys Leu			
65	70	75	80
Tyr Ser Ile Gly Ala Ser Ala Ile Tyr Asp Phe Asp Thr Gln Ser Pro			
85	90	95	

Val Lys Pro Tyr Leu Gly Ala Arg Leu Ser Leu Asn Arg Ala Ser Val  
 100 105 110

Asp Leu Gly Gly Ser Asp Ser Phe Ser Gln Thr Ser Ile Gly Leu Gly  
 115 120 125

Val Leu Thr Gly Val Ser Tyr Ala Val Thr Pro Asn Val Asp Leu Asp  
 130 135 140

Ala Gly Tyr Arg Tyr Asn Tyr Ile Gly Lys Val Asn Thr Val Lys Asn  
 145 150 155 160

Val Arg Ser Gly Glu Leu Ser Val Gly Val Arg Val Lys Phe  
 165 170

<210> 37 <211> 352 <212> PRT <213> Homo sapiens <400> 37

Met Glu Gly Ile Ser Ile Tyr Thr Ser Asp Asn Tyr Thr Glu Glu Met  
 1 5 10 15

Gly Ser Gly Asp Tyr Asp Ser Met Lys Glu Pro Cys Phe Arg Glu Glu  
 20 25 30

Asn Ala Asn Phe Asn Lys Ile Phe Leu Pro Thr Ile Tyr Ser Ile Ile  
 35 40 45

Phe Leu Thr Gly Ile Val Gly Asn Gly Leu Val Ile Leu Val Met Gly  
 50 55 60

Tyr Gln Lys Lys Leu Arg Ser Met Thr Asp Lys Tyr Arg Leu His Leu  
 65 70 75 80

Ser Val Ala Asp Leu Leu Phe Val Ile Thr Leu Pro Phe Trp Ala Val  
 85 90 95

Asp Ala Val Ala Asn Trp Tyr Phe Gly Asn Phe Leu Cys Lys Ala Val  
 100 105 110

His Val Ile Tyr Thr Val Asn Leu Tyr Ser Ser Val Leu Ile Leu Ala  
 115 120 125

Phe Ile Ser Leu Asp Arg Tyr Leu Ala Ile Val His Ala Thr Asn Ser  
 130 135 140

Gln Arg Pro Arg Lys Leu Leu Ala Glu Lys Val Val Tyr Val Gly Val  
 145 150 155 160

Trp Ile Pro Ala Leu Leu Leu Thr Ile Pro Asp Phe Ile Phe Ala Asn  
 165 170 175

Val Ser Glu Ala Asp Asp Arg Tyr Ile Cys Asp Arg Phe Tyr Pro Asn  
 180 185 190

Asp Leu Trp Val Val Val Phe Gln Phe Gln His Ile Met Val Gly Leu  
 195 200 205

Ile Leu Pro Gly Ile Val Ile Leu Ser Cys Tyr Cys Ile Ile Ile Ser  
 210 215 220

Lys Leu Ser His Ser Lys Gly His Gln Lys Arg Lys Ala Leu Lys Thr  
 225 230 235 240

Thr Ile Ile Pro Ile Leu Ala Phe Phe Ala Cys Trp Leu Pro Tyr Tyr  
 245 250 255

Ile Gly Ile Ser Ile Asp Ser Phe Ile Leu Leu Glu Ile Ile Lys Gln  
 260 265 270

Gly Cys Glu Phe Glu Asn Thr Val His Lys Trp Ile Ser Ile Thr Glu  
 275 280 285

Ala Leu Ala Phe Phe His Cys Cys Leu Asn Pro Ile Leu Tyr Ala Phe  
 290 295 300

Leu Gly Ala Lys Phe Lys Thr Ser Ala Gln His Ala Leu Thr Ser Val  
 305 310 315 320

Ser Arg Gly Ser Ser Leu Lys Ile Leu Ser Lys Gly Lys Arg Gly Gly  
 325 330 335

His Ser Ser Val Ser Thr Glu Ser Glu Ser Ser Ser Phe His Ser Ser  
 340 345 350

<210> 38 <211> 645 <212> DNA <213> Homo sapiens <220> <221> CDS  
 <222> (10)..(639) <223>

<400> 38  
 cttgcaggg atg ctg cgc gcg gga gaa gtc cac acc ggg acc acc atc atg 51  
 Met Leu Arg Ala Gly Glu Val His Thr Gly Thr Thr Ile Met  
 1 5 10

gca gtg gag ttt gac ggg ggc gtt gtg atg ggt tct gat tcc cga gtg 99  
 Ala Val Glu Phe Asp Gly Gly Val Val Met Gly Ser Asp Ser Arg Val

15	20	25	30	
tct gca ggc gag gcg	gtg gtg aac cga	gtg ttt gac aag	ctg tcc ccg	147
Ser Ala Gly Ala Val	Val Asn Arg Val	Phe Asp Lys Leu	Ser Pro	
35	40	45		
ctg cac gag cgc atc tac	tgt gca ctc tct ggt	tca gct gct gat	gcc	195
Leu His Glu Arg Ile	Tyr Cys Ala Leu Ser	Gly Ser Ala Ala	Asp Ala	
50	55	60		
caa gcc gtg gcc gac	atg gcc tac cag	ctg gag ctc cat	ggg ata	243
Gln Ala Val Ala Asp	Met Ala Tyr Gln	Leu Glu Leu His	Gly Ile	
65	70	75		
gaa ctg gag gaa cct	cca ctt gtt ttg	gct gca aat	gtg gtg aga	291
Glu Leu Glu Glu Pro	Leu Val Ala Ala	Ala Asn Val Val	Arg	
80	85	90		
aat atc agc tat aaa	tat cga gag gac	ttg tct gca cat	ctc atg gta	339
Asn Ile Ser Tyr Lys	Tyr Arg Glu Asp	Leu Ser Ala His	Leu Met Val	
95	100	105	110	
gct ggc tgg gac caa	cgt gaa gga ggt	cag gta tat gga	acc ctg gga	387
Ala Gly Trp Asp Gln	Arg Glu Gly Gln	Val Tyr Gly Thr	Leu Gly	
115	120	125		
gga atg ctg act cga	cag cct ttt gcc att	ggt ggc tcc ggc	agc acc	435
Gly Met Leu Thr Arg	Gln Pro Phe Ala	Ile Gly Ser	Gly Ser Thr	
130	135	140		
ttt atc tat ggt tat	gtg gat gca gca	tat aag cca ggc	atg tct ccc	483
Phe Ile Tyr Gly Tyr	Val Asp Ala Ala	Tyr Lys Pro	Gly Met Ser Pro	
145	150	155		
gag gag tgc agg cgc	ttc acc aca gac	gct att gct	ctg gcc atg agc	531
Glu Glu Cys Arg Arg	Phe Thr Thr Asp	Ala Ile Ala	Leu Ala Met Ser	
160	165	170		
cgg gat ggc tca agc	ggg ggt gtc atc	tac ctg gtc	act att aca gct	579
Arg Asp Gly Ser Ser	Gly Val Ile Tyr	Leu Val Thr Ile	Thr Ala	
175	180	185	190	
gcc ggt gtg gac cat	cga gtc atc ttg	ggc aat gaa	ctg cca aaa ttc	627
Ala Gly Val Asp His	Arg Val Ile Leu	Gly Asn Glu Leu	Pro Lys Phe	
195	200	205		
tat gat gag tga accttc				645
Tyr Asp Glu				

<210> 39 <211> 209 <212> PRT <213> Homo sapiens <400> 39

Met Leu Arg Ala Gly Glu Val His Thr Gly Thr Thr Ile Met Ala Val  
1 5 10 15

Glu Phe Asp Gly Gly Val Val Met Gly Ser Asp Ser Arg Val Ser Ala  
20 25 30

Gly Glu Ala Val Val Asn Arg Val Phe Asp Lys Leu Ser Pro Leu His  
 35 40 45

Glu Arg Ile Tyr Cys Ala Leu Ser Gly Ser Ala Ala Asp Ala Gln Ala  
 50 55 60

Val Ala Asp Met Ala Ala Tyr Gln Leu Glu Leu His Gly Ile Glu Leu  
 65 70 75 80

Glu Glu Pro Pro Leu Val Leu Ala Ala Asn Val Val Arg Asn Ile  
 85 90 95

Ser Tyr Lys Tyr Arg Glu Asp Leu Ser Ala His Leu Met Val Ala Gly  
 100 105 110

Trp Asp Gln Arg Glu Gly Gln Val Tyr Gly Thr Leu Gly Gly Met  
 115 120 125

Leu Thr Arg Gln Pro Phe Ala Ile Gly Gly Ser Gly Ser Thr Phe Ile  
 130 135 140

Tyr Gly Tyr Val Asp Ala Ala Tyr Lys Pro Gly Met Ser Pro Glu Glu  
 145 150 155 160

Cys Arg Arg Phe Thr Thr Asp Ala Ile Ala Leu Ala Met Ser Arg Asp  
 165 170 175

Gly Ser Ser Gly Gly Val Ile Tyr Leu Val Thr Ile Thr Ala Ala Gly  
 180 185 190

Val Asp His Arg Val Ile Leu Gly Asn Glu Leu Pro Lys Phe Tyr Asp  
 195 200 205

Glu

<210> 40 <211> 2247 <212> DNA <213> Homo sapiens <220> <221> CDS  
 <222> (1)..(2247) <223>

<400> 40  
 atg gct agc tct agg tgt ccc gct ccc cgc ggg tgc cgc tgc ctc ccc  
 Met Ala Ser Ser Arg Cys Pro Ala Pro Arg Gly Cys Arg Cys Leu Pro  
 1 5 10 15

gga gct tct ctc gca tgg ctg ggg aca gta ctg cta ctt ctc gcc gac  
 Gly Ala Ser Leu Ala Trp Leu Gly Thr Val Leu Leu Leu Ala Asp  
 20 25 30

tgg gtg ctg ctc cg acc gcg ctg ccc cgc ata ttc tcc ctg ctg gtg Trp Val Leu Leu Arg Thr Ala Leu Pro Arg Ile Phe Ser Leu Leu Val 35 40 45	144
ccc acc gcg ctg cca ctg ctc cg gtc tgg gcg gtg ggc ctg agc cgc Pro Thr Ala Leu Pro Leu Leu Arg Val Trp Ala Val Gly Leu Ser Arg 50 55 60	192
tgg gcc gtg ctc tgg ctg ggg gcc tgc ggg gtc ctc agg gca acg gtt Trp Ala Val Leu Trp Leu Gly Ala Cys Gly Val Leu Arg Ala Thr Val 65 70 75 80	240
ggc tcc aag agc gaa aac gca ggt gcc cag ggc tgg ctg gct gct ttg Gly Ser Lys Ser Glu Asn Ala Gly Ala Gln Gly Trp Leu Ala Ala Leu 85 90 95	288
aag cca tta gct gcg gca ctg ggc ttg gcc ctg ccg gga ctt gcc ttg Lys Pro Leu Ala Ala Leu Gly Leu Ala Leu Pro Gly Leu Ala Leu 100 105 110	336
ttc cga gag ctg atc tca tgg gga gcc ccc ggg tcc gcg gat agc acc Phe Arg Glu Leu Ile Ser Trp Gly Ala Pro Gly Ser Ala Asp Ser Thr 115 120 125	384
agg cta ctg cac tgg gga agt cac cct acc gcc ttc gtt gtc agt tat Arg Leu Leu His Trp Gly Ser His Pro Thr Ala Phe Val Val Ser Tyr 130 135 140	432
gca gcg gca ctg ccc gca gca gcc ctg tgg cac aaa ctc ggg agc ctc Ala Ala Ala Leu Pro Ala Ala Leu Trp His Lys Leu Gly Ser Leu 145 150 155 160	480
tgg gtg ccc ggc ggt cag ggc ggc tct gga aac cct gtc cgt cgg ctt Trp Val Pro Gly Gly Gln Gly Ser Gly Asn Pro Val Arg Arg Leu 165 170 175	528
cta ggc tgc ctg ggc tcg gag acg cgc cgc ctc tcg ctg ttc ctg gtc Leu Gly Cys Leu Gly Ser Glu Thr Arg Arg Leu Ser Leu Phe Leu Val 180 185 190	576
ctg gtg gtc ctc tcc tct ctt ggg gag atg gcc att cca ttc ttt acg Leu Val Val Leu Ser Ser Leu Gly Glu Met Ala Ile Pro Phe Phe Thr 195 200 205	624
ggc cgc ctc act gac tgg att cta caa gat ggc tca gcc gat acc ttc Gly Arg Leu Thr Asp Trp Ile Leu Gln Asp Gly Ser Ala Asp Thr Phe 210 215 220	672
act cga aac tta act ctc atg tcc att ctc acc ata gcc agt gca gtg Thr Arg Asn Leu Thr Leu Met Ser Ile Leu Thr Ile Ala Ser Ala Val 225 230 235 240	720
ctg gag ttc gtg ggt gac ggg atc tat aac aac acc atg ggc cac gtg Leu Glu Phe Val Gly Asp Gly Ile Tyr Asn Asn Thr Met Gly His Val 245 250 255	768
cac agc cac ttg cag gga gag gtg ttt ggg gct gtc ctg cgc cag gag His Ser His Leu Gln Gly Glu Val Phe Gly Ala Val Leu Arg Gln Glu 260 265 270	816

acg gag ttt ttc caa cag aac cag aca ggt aac atc atg tct cgg gta Thr Glu Phe Phe Gln Gln Asn Gln Thr Gly Asn Ile Met Ser Arg Val 275 280 285	864
aca gag gac acg tcc acc ctg agt gat tct ctg agt gag aat ctg agc Thr Glu Asp Thr Ser Thr Leu Ser Asp Ser Leu Ser Glu Asn Leu Ser 290 295 300	912
tta ttt ctg tgg tac ctg gtg cga ggc cta tgt ctc ttg ggg atc atg Leu Phe Leu Trp Tyr Leu Val Arg Gly Leu Cys Leu Leu Gly Ile Met 305 310 315 320	960
ctc tgg gga tca gtg tcc ctc acc atg gtc acc ctg gtc acc ctg cct Leu Trp Gly Ser Val Ser Leu Thr Met Val Thr Leu Val Thr Leu Pro 325 330 335	1008
ctg ctt ttc ctt ctg ccc aag aag gtg gga aaa tgg tac cag ttg ctg Leu Leu Phe Leu Leu Pro Lys Lys Val Gly Lys Trp Tyr Gln Leu Leu 340 345 350	1056
gaa gtg cag gtg cgg gaa tct ctg gca aag tcc agc cag gtg gcc att Glu Val Gln Val Arg Glu Ser Leu Ala Lys Ser Ser Gln Val Ala Ile 355 360 365	1104
gag gct ctg tcg gcc atg cct aca gtt cga agc ttt gcc aac gag gag Glu Ala Leu Ser Ala Met Pro Thr Val Arg Ser Phe Ala Asn Glu Glu 370 375 380	1152
ggc gaa gcc cag aag ttt agg gaa aag ctg caa gaa ata aag aca ctc Gly Glu Ala Gln Lys Phe Arg Glu Lys Leu Gln Glu Ile Lys Thr Leu 385 390 395 400	1200
aac cag aag gag gct gtg gcc tat gca gtc aac tcc tgg acc act agt Asn Gln Lys Glu Ala Val Ala Tyr Ala Val Asn Ser Trp Thr Thr Ser 405 410 415	1248
att tca ggt atg ctg ctg aaa gtg gga atc ctc tac att ggt ggg cag Ile Ser Gly Met Leu Leu Lys Val Gly Ile Leu Tyr Ile Gly Gly Gln 420 425 430	1296
ctg gtg acc agt ggg gct gta agc agt ggg aac ctt gtc aca ttt gtt Leu Val Thr Ser Gly Ala Val Ser Ser Gly Asn Leu Val Thr Phe Val 435 440 445	1344
ctc tac cag atg cag ttc acc cag gct ttg gag gta ctg ctc tcc atc Leu Tyr Gln Met Gln Phe Thr Gln Ala Leu Glu Val Leu Leu Ser Ile 450 455 460	1392
tac ccc aga gta cag aag gct gtg ggc tcc tca gag aaa ata ttt gag Tyr Pro Arg Val Gln Lys Ala Val Gly Ser Ser Glu Lys Ile Phe Glu 465 470 475 480	1440
tac ctg gac cgc acc cct cgc tgc cca ccc agt ggt ctg ttg act ccc Tyr Leu Asp Arg Thr Pro Arg Cys Pro Pro Ser Gly Leu Leu Thr Pro 485 490 495	1488
tta cac ttg gag ggc ctt gtc cag ttc caa gat gtc tcc ttt gcc tac Leu His Leu Glu Gly Leu Val Gln Phe Gln Asp Val Ser Phe Ala Tyr 500 505 510	1536

cca aac cgc cca gat gtc tta gtg cta cag ggg ctg aca ttc acc cta Pro Asn Arg Pro Asp Val Leu Val Leu Gln Gly Leu Thr Phe Thr Leu 515 520 525	1584
cgc cct ggc gag gtg acg gcg ctg gtg gga ccc aat ggg tct ggg aag Arg Pro Gly Glu Val Thr Ala Leu Val Gly Pro Asn Gly Ser Gly Lys 530 535 540	1632
agc aca gtg gct gcc ctg ctg cag aat ctg tac cag ccc acc ggg gga Ser Thr Val Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly 545 550 555 560	1680
cag ctg ctg ttg gat ggg aag ccc ctt ccc caa tat gag cac cgc tac Gln Leu Leu Leu Asp Gly Lys Pro Leu Pro Gln Tyr Glu His Arg Tyr 565 570 575	1728
ctg cac agg cag gtg gct gca gtg gga caa gag cca cag gta ttt gga Leu His Arg Gln Val Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly 580 585 590	1776
aga agt ctt caa gaa aat att gcc tat ggc ctg acc cag aag cca act Arg Ser Leu Gln Glu Asn Ile Ala Tyr Gly Leu Thr Gln Lys Pro Thr 595 600 605	1824
atg gag gaa atc aca gct gct gca gta aag tct ggg gcc cat agt ttc Met Glu Glu Ile Thr Ala Ala Val Lys Ser Gly Ala His Ser Phe 610 615 620	1872
atc tct gga ctc cct cag ggc tat gac aca gag gta ggc gag gct ggg Ile Ser Gly Leu Pro Gln Gly Tyr Asp Thr Glu Val Gly Glu Ala Gly 625 630 635 640	1920
agc cag ctg tca ggg ggt cag caa cag gca gtg gcg ttg gcc cga gca Ser Gln Leu Ser Gly Gln Gln Gln Ala Val Ala Leu Ala Arg Ala 645 650 655	1968
ttg atc cgg aaa ccg tgt gta ctt atc ctg gat gat gcc acc agt gcc Leu Ile Arg Lys Pro Cys Val Leu Ile Leu Asp Asp Ala Thr Ser Ala 660 665 670	2016
ctg gat gca aac agc cag tta cag gtg gag cag ctc ctg tac gaa agc Leu Asp Ala Asn Ser Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser 675 680 685	2064
cct gag cgg tac tcc cgc tca gtg ctt ctc atc acc cag cac ctc agc Pro Glu Arg Tyr Ser Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser 690 695 700	2112
ctg gtg gag cag gct gac cac atc ctc ttt ctg gaa gga ggc gct atc Leu Val Glu Gln Ala Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile 705 710 715 720	2160
cg <sup>g</sup> gag ggg gga acc cac cag cag ctc atg gag aaa aag ggg tgc tac Arg Glu Gly Gly Thr His Gln Gln Leu Met Glu Lys Lys Gly Cys Tyr 725 730 735	2208
tgg gcc atg gtg cag gct cct gca gat gct cca gaa tga Trp Ala Met Val Gln Ala Pro Ala Asp Ala Pro Glu 740 745	2247

<210> 41 <211> 748 <212> PRT <213> Homo sapiens <400> 41  
Met Ala Ser Ser Arg Cys Pro Ala Pro Arg Gly Cys Arg Cys Leu Pro  
1 5 10 15

Gly Ala Ser Leu Ala Trp Leu Gly Thr Val Leu Leu Leu Ala Asp  
20 25 30

Trp Val Leu Leu Arg Thr Ala Leu Pro Arg Ile Phe Ser Leu Leu Val  
35 40 45

Pro Thr Ala Leu Pro Leu Leu Arg Val Trp Ala Val Gly Leu Ser Arg  
50 55 60

Trp Ala Val Leu Trp Leu Gly Ala Cys Gly Val Leu Arg Ala Thr Val  
65 70 75 80

Gly Ser Lys Ser Glu Asn Ala Gly Ala Gln Gly Trp Leu Ala Ala Leu  
85 90 95

Lys Pro Leu Ala Ala Ala Leu Gly Leu Ala Leu Pro Gly Leu Ala Leu  
100 105 110

Phe Arg Glu Leu Ile Ser Trp Gly Ala Pro Gly Ser Ala Asp Ser Thr  
115 120 125

Arg Leu Leu His Trp Gly Ser His Pro Thr Ala Phe Val Val Ser Tyr  
130 135 140

Ala Ala Ala Leu Pro Ala Ala Ala Leu Trp His Lys Leu Gly Ser Leu  
145 150 155 160

Trp Val Pro Gly Gly Gln Gly Gly Ser Gly Asn Pro Val Arg Arg Leu  
165 170 175

Leu Gly Cys Leu Gly Ser Glu Thr Arg Arg Leu Ser Leu Phe Leu Val  
180 185 190

Leu Val Val Leu Ser Ser Leu Gly Glu Met Ala Ile Pro Phe Phe Thr  
195 200 205

Gly Arg Leu Thr Asp Trp Ile Leu Gln Asp Gly Ser Ala Asp Thr Phe  
210 215 220

Thr Arg Asn Leu Thr Leu Met Ser Ile Leu Thr Ile Ala Ser Ala Val  
 225 230 235 240  
  
 Leu Glu Phe Val Gly Asp Gly Ile Tyr Asn Asn Thr Met Gly His Val  
 245 250 255  
  
 His Ser His Leu Gln Gly Glu Val Phe Gly Ala Val Leu Arg Gln Glu  
 260 265 270  
  
 Thr Glu Phe Phe Gln Gln Asn Gln Thr Gly Asn Ile Met Ser Arg Val  
 275 280 285  
  
 Thr Glu Asp Thr Ser Thr Leu Ser Asp Ser Leu Ser Glu Asn Leu Ser  
 290 295 300  
  
 Leu Phe Leu Trp Tyr Leu Val Arg Gly Leu Cys Leu Leu Gly Ile Met  
 305 310 315 320  
  
 Leu Trp Gly Ser Val Ser Leu Thr Met Val Thr Leu Val Thr Leu Pro  
 325 330 335  
  
 Leu Leu Phe Leu Leu Pro Lys Lys Val Gly Lys Trp Tyr Gln Leu Leu  
 340 345 350  
  
 Glu Val Gln Val Arg Glu Ser Leu Ala Lys Ser Ser Gln Val Ala Ile  
 355 360 365  
  
 Glu Ala Leu Ser Ala Met Pro Thr Val Arg Ser Phe Ala Asn Glu Glu  
 370 375 380  
  
 Gly Glu Ala Gln Lys Phe Arg Glu Lys Leu Gln Glu Ile Lys Thr Leu  
 385 390 395 400  
  
 Asn Gln Lys Glu Ala Val Ala Tyr Ala Val Asn Ser Trp Thr Thr Ser  
 405 410 415  
  
 Ile Ser Gly Met Leu Leu Lys Val Gly Ile Leu Tyr Ile Gly Gly Gln  
 420 425 430  
  
 Leu Val Thr Ser Gly Ala Val Ser Ser Gly Asn Leu Val Thr Phe Val  
 435 440 445  
  
 Leu Tyr Gln Met Gln Phe Thr Gln Ala Leu Glu Val Leu Leu Ser Ile  
 450 455 460

Tyr Pro Arg Val Gln Lys Ala Val Gly Ser Ser Glu Lys Ile Phe Glu  
 465 470 475 480

Tyr Leu Asp Arg Thr Pro Arg Cys Pro Pro Ser Gly Leu Leu Thr Pro  
 485 490 495

Leu His Leu Glu Gly Leu Val Gln Phe Gln Asp Val Ser Phe Ala Tyr  
 500 505 510

Pro Asn Arg Pro Asp Val Leu Val Leu Gln Gly Leu Thr Phe Thr Leu  
 515 520 525

Arg Pro Gly Glu Val Thr Ala Leu Val Gly Pro Asn Gly Ser Gly Lys  
 530 535 540

Ser Thr Val Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly  
 545 550 555 560

Gln Leu Leu Leu Asp Gly Lys Pro Leu Pro Gln Tyr Glu His Arg Tyr  
 565 570 575

Leu His Arg Gln Val Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly  
 580 585 590

Arg Ser Leu Gln Glu Asn Ile Ala Tyr Gly Leu Thr Gln Lys Pro Thr  
 595 600 605

Met Glu Glu Ile Thr Ala Ala Val Lys Ser Gly Ala His Ser Phe  
 610 615 620

Ile Ser Gly Leu Pro Gln Gly Tyr Asp Thr Glu Val Gly Glu Ala Gly  
 625 630 635 640

Ser Gln Leu Ser Gly Gly Gln Gln Ala Val Ala Leu Ala Arg Ala  
 645 650 655

Leu Ilé Arg Lys Pro Cys Val Leu Ile Leu Asp Asp Ala Thr Ser Ala  
 660 665 670

Leu Asp Ala Asn Ser Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser  
 675 680 685

Pro Glu Arg Tyr Ser Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser  
 690 695 700

Leu Val Glu Gln Ala Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile  
705 710 715 720

Arg Glu Gly Gly Thr His Gln Gln Leu Met Glu Lys Lys Gly Cys Tyr  
725 730 735

Trp Ala Met Val Gln Ala Pro Ala Asp Ala Pro Glu  
740 745

<210> 42 <211> 2085 <212> DNA <213> Homo sapiens <220> <221> CDS  
<222> (65)..(2005) <223>

<400> 42  
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 aacc atg tcc aag gga cct gca gtt ggt att gat ctt ggc acc acc tac  
     Met Ser Lys Gly Pro Ala Val Gly Ile Asp Leu Gly Thr Thr Tyr  
     1                 5                 10                 15  
 tct tgt gtg ggt gtt ttc cag cac gga aaa gtc gag ata att gcc aat 157  
   Ser Cys Val Gly Val Phe Gln His Gly Lys Val Glu Ile Ile Ala Asn  
   20                 25                 30  
 gat cag gga aac cga acc act cca agc tat gtc gcc ttt acg gac act 205  
   Asp Gln Gly Asn Arg Thr Thr Pro Ser Tyr Val Ala Phe Thr Asp Thr  
   35                 40                 45  
 gaa cgg ttg atc ggt gat gcc gca aag aat caa gtt gca atg aac ccc 253  
   Glu Arg Leu Ile Gly Asp Ala Ala Lys Asn Gln Val Ala Met Asn Pro  
   50                 55                 60  
 acc aac aca gtt ttt gat gcc aaa cgt ctg att gga cgc aga ttt gat 301  
   Thr Asn Thr Val Phe Asp Ala Lys Arg Leu Ile Gly Arg Arg Phe Asp  
   65                 70                 75  
 gat gct gtt gtc cag tct gat atg aaa cat tgg ccc ttt atg gtg gtg 349  
   Asp Ala Val Val Gln Ser Asp Met Lys His Trp Pro Phe Met Val Val  
   80                 85                 90                 95  
 aat gat gct ggc agg ccc aag gtc caa gta gaa tac aag gga gag acc 397  
   Asn Asp Ala Gly Arg Pro Lys Val Gln Val Glu Tyr Lys Gly Glu Thr  
   100                 105                 110  
 aaa agc ttc tat cca gag gag gtg tct tct atg gtt ctg aca aag atg 445  
   Lys Ser Phe Tyr Pro Glu Glu Val Ser Ser Met Val Leu Thr Lys Met  
   115                 120                 125  
 aag gaa att gca gaa gcc tac ctt ggg aag act gtt acc aat gct gtg 493  
   Lys Glu Ile Ala Glu Ala Tyr Leu Gly Lys Thr Val Thr Asn Ala Val  
   130                 135                 140  
 gtc aca gtg cca gct tac ttt aat gac tct cag cgt cag gct acc aaa 541  
   Val Thr Val Pro Ala Tyr Phe Asn Asp Ser Gln Arg Gln Ala Thr Lys  
   145                 150                 155  
 gat gct gga act att gct ggt ctc aat gta ctt aga att att aat gag 589  
   Asn Ala Gly Thr Ile Ala Gly Leu Asn Val Leu Arg Ile Ile Asp Glu

160	165	170	175	
cca act gct gct att gct tac ggc tta gac aaa aag gtt gga gca Pro Thr Ala Ala Ala Ile Ala Tyr Gly Leu Asp Lys Lys Val Gly Ala 180		185	190	637
gaa aga aac gtg ctc atc ttt gac ctg gga ggt ggc act ttt gat gtg Glu Arg Asn Val Leu Ile Phe Asp Leu Gly Gly Thr Phe Asp Val 195	200		205	685
tca atc ctc act att gag gat gga atc ttt gag gtc aag tct aca gct Ser Ile Leu Thr Ile Glu Asp Gly Ile Phe Glu Val Lys Ser Thr Ala 210	215	220		733
gga gac acc cac ttg ggt gga gaa gat ttt gac aac cga atg gtc aac Gly Asp Thr His Leu Gly Gly Glu Asp Phe Asp Asn Arg Met Val Asn 225	230	235		781
cat ttt att gct gag ttt aag cgc aag cat aag aag gac atc agt gag His Phe Ile Ala Glu Phe Lys Arg Lys His Lys Lys Asp Ile Ser Glu 240	245	250	255	829
aac aag aga gct gta aga cgc ctc cgt act gct tgt gaa cgt gct aag Asn Lys Arg Ala Val Arg Arg Leu Arg Thr Ala Cys Glu Arg Ala Lys 260	265		270	877
cgt acc ctc tct tcc agc acc cag gcc agt att gag atc gat tct ctc Arg Thr Leu Ser Ser Ser Thr Gln Ala Ser Ile Glu Ile Asp Ser Leu 275	280	285		925
tat gaa gga atc gac ttc tat acc tcc att acc cgt gcc cga ttt gaa Tyr Glu Gly Ile Asp Phe Tyr Thr Ser Ile Thr Arg Ala Arg Phe Glu 290	295	300		973
gaa ctg aat gct gac ctg ttc cgt ggc acc ctg gac cca gta gag aaa Glu Leu Asn Ala Asp Leu Phe Arg Gly Thr Leu Asp Pro Val Glu Lys 305	310	315		1021
gcc ctt cga gat gcc aaa cta gac aag tca cag att cat gat att gtc Ala Leu Arg Asp Ala Lys Leu Asp Lys Ser Gln Ile His Asp Ile Val 320	325	330	335	1069
ctg gtt ggt ggt tct act cgt atc ccc aag att cag aag ctt ctc caa Leu Val Gly Gly Ser Thr Arg Ile Pro Lys Ile Gln Lys Leu Leu Gln 340	345		350	1117
gac ttc ttc aat gga aaa gaa ctg aat aag agc atc aac cct gat gaa Asp Phe Phe Asn Gly Lys Glu Leu Asn Lys Ser Ile Asn Pro Asp Glu 355	360	365		1165
gct gtt gct tat ggt gca gct gtc cag gca gcc atc ttg tct gga gac Ala Val Ala Tyr Gly Ala Ala Val Gln Ala Ala Ile Leu Ser Gly Asp 370	375	380		1213
aag tct gag aat gtt caa gat ttg ctg ctc ttg gat gtc act cct ctt Lys Ser Glu Asn Val Gln Asp Leu Leu Leu Asp Val Thr Pro Leu 385	390	395		1261
tcc ctt ggt att gaa act gct ggt gga gtc atg act gtc ctc atc aag Ser Leu Gly Ile Glu Thr Ala Gly Gly Val Met Thr Val Leu Ile Lys				1309

400	405	410	415	
cgt aat acc acc att cct acc aag cag aca cag acc ttc act acc tat Arg Asn Thr Thr Ile Pro Thr Lys Gln Thr Gln Thr Phe Thr Thr Tyr 420		425	430	1357
tct gac aac cag cct ggt gtg ctt att cag gtt tat gaa ggc gag cgt Ser Asp Asn Gln Pro Gly Val Leu Ile Gln Val Tyr Glu Gly Glu Arg 435	440		445	1405
gcc atg aca aag gat aac aac ctg ctt ggc aag ttt gaa ctc aca ggc Ala Met Thr Lys Asp Asn Asn Leu Leu Gly Lys Phe Glu Leu Thr Gly 450	455		460	1453
ata cct cct gca ccc cga ggt gtt cct cag att gaa gtc act ttt gac Ile Pro Pro Ala Pro Arg Gly Val Pro Gln Ile Glu Val Thr Phe Asp 465	470	475		1501
att gat gcc aat ggt ata ctc aat gtc tct gct gtg gac aag agt acg Ile Asp Ala Asn Gly Ile Leu Asn Val Ser Ala Val Asp Lys Ser Thr 480	485	490	495	1549
gga aaa gag aac aag att act atc act aat gac aag ggc cgt ttg agc Gly Lys Glu Asn Lys Ile Thr Ile Asn Asp Lys Gly Arg Leu Ser 500		505	510	1597
aag gaa gac att gaa cgt atg gtc cag gaa gct gag aag tac aaa gct Lys Glu Asp Ile Glu Arg Met Val Gln Glu Ala Glu Lys Tyr Lys Ala 515	520		525	1645
gaa gat gag aag cag agg gac aag gtg tca tcc aag aat tca ctt gag Glu Asp Glu Lys Gln Arg Asp Lys Val Ser Ser Lys Asn Ser Leu Glu 530	535		540	1693
tcc tat gcc ttc aac atg aaa gca act gtt gaa gat gag aaa ctt caa Ser Tyr Ala Phe Asn Met Lys Ala Thr Val Glu Asp Glu Lys Leu Gln 545	550	555		1741
ggc aag att aac gat gag gac aaa cag aag att ctg gac aag tgt aat Gly Lys Ile Asn Asp Glu Asp Lys Gln Lys Ile Leu Asp Lys Cys Asn 560	565	570	575	1789
gaa att atc aac tgg ctt gat aag aat cag act gct gag aag gaa gaa Glu Ile Ile Asn Trp Leu Asp Lys Asn Gln Thr Ala Glu Lys Glu Glu 580	585		590	1837
ttt gaa cat caa cag aaa gag ctg gag aaa gtt tgc aac ccc atc atc Phe Glu His Gln Gln Lys Glu Leu Glu Lys Val Cys Asn Pro Ile Ile 595	600		605	1885
acc aag ctg tac cag agt gca gga ggc atg cca gga gga atg cct ggg Thr Lys Leu Tyr Gln Ser Ala Gly Gly Met Pro Gly Gly Met Pro Gly 610	615	620		1933
gga ttt cct ggt ggt gga gct cct ccc tct ggt ggt gct tcc tca ggg Gly Phe Pro Gly Gly Ala Pro Pro Ser Gly Gly Ala Ser Ser Gly 625	630	635		1981
ccc acc att gaa gag gtt gat taa gccaaccaag tgttagatgta gcattgttcc Pro Thr Ile Glu Glu Val Asp				2035

640

645

acacatttaa aacatttgaa ggacctaaat tcgttagcaaa ttctgtggca

2085

&lt;210&gt; 43 &lt;211&gt; 646 &lt;212&gt; PRT &lt;213&gt; Homo sapiens &lt;400&gt; 43

Met Ser Lys Gly Pro Ala Val Gly Ile Asp Leu Gly Thr Thr Tyr Ser  
1 5 10 15Cys Val Gly Val Phe Gln His Gly Lys Val Glu Ile Ile Ala Asn Asp  
20 25 30Gln Gly Asn Arg Thr Thr Pro Ser Tyr Val Ala Phe Thr Asp Thr Glu  
35 40 45Arg Leu Ile Gly Asp Ala Ala Lys Asn Gln Val Ala Met Asn Pro Thr  
50 55 60Asn Thr Val Phe Asp Ala Lys Arg Leu Ile Gly Arg Arg Phe Asp Asp  
65 70 75 80Ala Val Val Gln Ser Asp Met Lys His Trp Pro Phe Met Val Val Asn  
85 90 95Asp Ala Gly Arg Pro Lys Val Gln Val Glu Tyr Lys Gly Glu Thr Lys  
100 105 110Ser Phe Tyr Pro Glu Glu Val Ser Ser Met Val Leu Thr Lys Met Lys  
115 120 125Glu Ile Ala Glu Ala Tyr Leu Gly Lys Thr Val Thr Asn Ala Val Val  
130 135 140Thr Val Pro Ala Tyr Phe Asn Asp Ser Gln Arg Gln Ala Thr Lys Asp  
145 150 155 160Ala Gly Thr Ile Ala Gly Leu Asn Val Leu Arg Ile Ile Asn Glu Pro  
165 170 175Thr Ala Ala Ala Ile Ala Tyr Gly Leu Asp Lys Lys Val Gly Ala Glu  
180 185 190Arg Asn Val Leu Ile Phe Asp Leu Gly Gly Thr Phe Asp Val Ser  
195 200 205

Ile Leu Thr Ile Glu Asp Gly Ile Phe Glu Val Lys Ser Thr Ala Gly

210	215	220
Asp Thr His Leu Gly Gly Glu Asp Phe Asp Asn Arg Met Val Asn His		
225	230	235
Phe Ile Ala Glu Phe Lys Arg Lys His Lys Lys Asp Ile Ser Glu Asn		
245	250	255
Lys Arg Ala Val Arg Arg Leu Arg Thr Ala Cys Glu Arg Ala Lys Arg		
260	265	270
Thr Leu Ser Ser Ser Thr Gln Ala Ser Ile Glu Ile Asp Ser Leu Tyr		
275	280	285
Glu Gly Ile Asp Phe Tyr Thr Ser Ile Thr Arg Ala Arg Phe Glu Glu		
290	295	300
Leu Asn Ala Asp Leu Phe Arg Gly Thr Leu Asp Pro Val Glu Lys Ala		
305	310	315
Leu Arg Asp Ala Lys Leu Asp Lys Ser Gln Ile His Asp Ile Val Leu		
325	330	335
Val Gly Gly Ser Thr Arg Ile Pro Lys Ile Gln Lys Leu Leu Gln Asp		
340	345	350
Phe Phe Asn Gly Lys Glu Leu Asn Lys Ser Ile Asn Pro Asp Glu Ala		
355	360	365
Val Ala Tyr Gly Ala Ala Val Gln Ala Ala Ile Leu Ser Gly Asp Lys		
370	375	380
Ser Glu Asn Val Gln Asp Leu Leu Leu Asp Val Thr Pro Leu Ser		
385	390	395
Leu Gly Ile Glu Thr Ala Gly Gly Val Met Thr Val Leu Ile Lys Arg		
405	410	415
Asn Thr Thr Ile Pro Thr Lys Gln Thr Gln Thr Phe Thr Thr Tyr Ser		
420	425	430
Asp Asn Gln Pro Gly Val Leu Ile Gln Val Tyr Glu Gly Glu Arg Ala		
435	440	445
Met Thr Lys Asp Asn Asn Leu Leu Gly Lys Phe Glu Leu Thr Gly Ile		

450	455	460
Pro Pro Ala Pro Arg Gly Val Pro Gln Ile Glu Val Thr Phe Asp Ile		
465	470	475
Asp Ala Asn Gly Ile Leu Asn Val Ser Ala Val Asp Lys Ser Thr Gly		
485	490	495
Lys Glu Asn Lys Ile Thr Ile Thr Asn Asp Lys Gly Arg Leu Ser Lys		
500	505	510
Glu Asp Ile Glu Arg Met Val Gln Glu Ala Glu Lys Tyr Lys Ala Glu		
515	520	525
Asp Glu Lys Gln Arg Asp Lys Val Ser Ser Lys Asn Ser Leu Glu Ser		
530	535	540
Tyr Ala Phe Asn Met Lys Ala Thr Val Glu Asp Glu Lys Leu Gln Gly		
545	550	555
Lys Ile Asn Asp Glu Asp Lys Gln Lys Ile Leu Asp Lys Cys Asn Glu		
565	570	575
Ile Ile Asn Trp Leu Asp Lys Asn Gln Thr Ala Glu Lys Glu Glu Phe		
580	585	590
Glu His Gln Gln Lys Glu Leu Glu Lys Val Cys Asn Pro Ile Ile Thr		
595	600	605
Lys Leu Tyr Gln Ser Ala Gly Gly Met Pro Gly Gly Met Pro Gly Gly		
610	615	620
Phe Pro Gly Gly Ala Pro Pro Ser Gly Gly Ala Ser Ser Gly Pro		
625	630	635
Thr Ile Glu Glu Val Asp		
645		
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tgataaaattt cattgaataa gaactaaatt agtttataat ttattattag tatcctgtgg		120
atatgacata gagtataagg aggggtttt atg aac aaa aat gtg ttg aag ttt		174

Met Asn Lys Asn Val Leu Lys Phe	
1	5
atg gtc ttt ata atg tta aat atc atc aca cct tta ttt aat aaa	222
Met Val Phe Ile Met Leu Leu Asn Ile Ile Thr Pro Leu Phe Asn Lys	
10	15
20	
aat gaa gca ttt gca gca cga gat att tca tca acg aat gtt aca gat	270
Asn Glu Ala Phe Ala Ala Arg Asp Ile Ser Ser Thr Asn Val Thr Asp	
25	30
35	40
tta act gta tca ccg tct aag ata gaa gat ggt ggt aaa acg aca gta	318
Leu Thr Val Ser Pro Ser Lys Ile Glu Asp Gly Gly Lys Thr Thr Val	
45	50
55	
aaa atg acg ttc gac gat aaa aat gga aaa ata caa aat ggt gac atg	366
Lys Met Thr Phe Asp Asp Lys Asn Gly Lys Ile Gln Asn Gly Asp Met	
60	65
70	
att aaa gtg gca tgg ccg aca agc ggt aca gta aag ata gag ggt tat	414
Ile Lys Val Ala Trp Pro Thr Ser Gly Thr Val Lys Ile Glu Gly Tyr	
75	80
85	
agt aaa aca gta cca tta act gtt aaa ggt gaa cag gtg ggt caa gca	462
Ser Lys Thr Val Pro Leu Thr Val Lys Gly Glu Gln Val Gly Gln Ala	
90	95
100	
gtt att aca cca gac ggt gca aca att aca ttc aat gat aaa gta gaa	510
Val Ile Thr Pro Asp Gly Ala Thr Ile Thr Phe Asn Asp Lys Val Glu	
105	110
115	120
aaa tta agt gat gtt tcg gga ttt gca gaa ttt gaa gta caa gga aga	558
Lys Leu Ser Asp Val Ser Gly Phe Ala Glu Phe Glu Val Gln Gly Arg	
125	130
135	
aat tta acg caa aca aat act tca gat gac aaa gta gct acg ata aca	606
Asn Leu Thr Gln Thr Asn Thr Ser Asp Asp Lys Val Ala Thr Ile Thr	
140	145
150	
tct ggg aat aaa tca acg aat gtt acg gtt cat aaa agt gaa gca ggg	654
Ser Gly Asn Lys Ser Thr Asn Val Thr Val His Lys Ser Glu Ala Gly	
155	160
165	
aca agt agt gtt ttc tat tat aaa acg gga gat atg cta cca gaa gat	702
Thr Ser Ser Val Phe Tyr Tyr Lys Thr Gly Asp Met Leu Pro Glu Asp	
170	175
180	
acg aca cat gta cga tgg ttt tta aat att aac aat gaa aaa agt tat	750
Thr Thr His Val Arg Trp Phe Leu Asn Ile Asn Asn Glu Lys Ser Tyr	
185	190
195	200
gta tcg aaa gat att act ata aag gat cag att caa ggt gga cag cag	798
Val Ser Lys Asp Ile Thr Ile Lys Asp Gln Ile Gln Gly Gly Gln Gln	
205	210
215	
tta gat tta agc aca tta aac att aat gtg aca ggt aca cat agc aat	846
Leu Asp Leu Ser Thr Leu Asn Ile Asn Val Thr Gly Thr His Ser Asn	
220	225
230	
tat tat agt gga caa agt gca att act gat ttt gaa aaa gcc ttt cca	894

Tyr Tyr Ser Gly Gln Ser Ala Ile Thr Asp Phe Glu Lys Ala Phe Pro			
235	240	245	
ggt tct aaa ata act gtt gat aat acg aag aac aca att gat gta aca			942
Gly Ser Lys Ile Thr Val Asp Asn Thr Lys Asn Thr Ile Asp Val Thr			
250	255	260	
att cca caa ggc tat ggg tca tat aat agt ttt tca att aac tac aaa			990
Ile Pro Gln Gly Tyr Gly Ser Tyr Asn Ser Phe Ser Ile Asn Tyr Lys			
265	270	275	280
acc aaa att acg aat gaa cag caa aaa gag ttt gtt aat aat tca caa			1038
Thr Lys Ile Thr Asn Glu Gln Gln Lys Glu Phe Val Asn Asn Ser Gln			
285	290	295	
gct tgg tat caa gag cat ggt aag gaa gaa gtg aac ggg aaa tca ttt			1086
Ala Trp Tyr Gln Glu His Gly Lys Glu Val Asn Gly Lys Ser Phe			
300	305	310	
aat cat act gtg cac aat att aat gct aat gcc ggt att gaa ggt act			1134
Asn His Thr Val His Asn Ile Asn Ala Asn Ala Gly Ile Glu Gly Thr			
315	320	325	
gta aaa ggt gaa tta aaa gtt tta aaa cag gat aaa gat acc aag gct			1182
Val Lys Gly Glu Leu Lys Val Leu Lys Gln Asp Lys Asp Thr Lys Ala			
330	335	340	
cct ata gct aat gta aaa ttt aaa ctt tct aaa aaa gat gga tca gtt			1230
Pro Ile Ala Asn Val Lys Phe Lys Leu Ser Lys Lys Asp Gly Ser Val			
345	350	355	360
gta aag gac aat caa aaa gaa att gag att ata aca gat gca aac ggt			1278
Val Lys Asp Asn Gln Lys Glu Ile Glu Ile Ile Thr Asp Ala Asn Gly			
365	370	375	
att gct aat att aaa gcg ttg cct agt gga gac tat att tta aaa gaa			1326
Ile Ala Asn Ile Lys Ala Leu Pro Ser Gly Asp Tyr Ile Leu Lys Glu			
380	385	390	
ata gag gcg cca cga ccg tat aca ttt gat aag gat aaa gaa tat ccg			1374
Ile Glu Ala Pro Arg Pro Tyr Thr Phe Asp Lys Asp Lys Glu Tyr Pro			
395	400	405	
ttt act atg aaa gat aca gat aat cag gga tat ttt acg act att gaa			1422
Phe Thr Met Lys Asp Thr Asp Asn Gln Gly Tyr Phe Thr Thr Ile Glu			
410	415	420	
aat gca aaa gcg ata gaa aaa aca aaa gat gtt tct gct caa aag gtt			1470
Asn Ala Lys Ala Ile Glu Lys Thr Lys Asp Val Ser Ala Gln Lys Val			
425	430	435	440
tgg gaa ggc act caa aaa gtg aaa cca acg att tat ttc aag ttg tac			1518
Trp Glu Gly Thr Gln Lys Val Lys Pro Thr Ile Tyr Phe Lys Leu Tyr			
445	450	455	
aaa caa gat gac aat caa aat aca aca cca gta gac aaa gca gag att			1566
Lys Gln Asp Asp Asn Gln Asn Thr Thr Pro Val Asp Lys Ala Glu Ile			
460	465	470	
aaa aaa tta gaa gat gga acg aca aaa gtg aca tgg tct aat ctt ccg			1614

Lys Lys Leu Glu Asp Gly Thr Thr Lys Val Thr Trp Ser Asn Leu Pro 475	480	485	
gaa aat gac aaa aat ggc aag gct att aaa tat tta gtt aaa gaa gta Glu Asn Asp Lys Asn Gly Lys Ala Ile Lys Tyr Leu Val Lys Glu Val 490	495	500	1662
aat gct caa ggt gaa gat aca aca cca gaa gga tat act aaa aaa gaa Asn Ala Gln Gly Glu Asp Thr Thr Pro Glu Gly Tyr Thr Lys Lys Glu 505	510	515	1710
aat ggt tta gtg gtt act aat act gaa aaa cca atc gaa aca aca tca Asn Gly Leu Val Val Thr Asn Thr Glu Lys Pro Ile Glu Thr Thr Ser 525	530	535	1758
att agt ggt gaa aaa gta tgg gac gac aaa gac aat caa gat ggt aag Ile Ser Gly Glu Lys Val Trp Asp Asp Lys Asp Asn Gln Asp Gly Lys 540	545	550	1806
aga cca gaa aaa gtc agt gtg aat tta ttg gct aac ggg gag aaa gta Arg Pro Glu Lys Val Ser Val Asn Leu Leu Asn Gly Glu Lys Val 555	560	565	1854
aaa acg tta gac gtg aca tct gaa aca aac tgg aag tac gaa ttt aaa Lys Thr Leu Asp Val Thr Ser Glu Thr Asn Trp Lys Tyr Glu Phe Lys 570	575	580	1902
gac tta ccg aag tat gat gaa gga aag aaa ata gaa tat aca gtg acc Asp Leu Pro Lys Tyr Asp Glu Gly Lys Lys Ile Glu Tyr Thr Val Thr 585	590	595	1950
gaa gat cac gta aaa gac tac aca aca gac atc aac ggt acg aca ata Glu Asp His Val Lys Asp Tyr Thr Asp Ile Asn Gly Thr Thr Ile 605	610	615	1998
acg aac aag tat aca cca gga gag aca tcg gca aca gta aca aaa aat Thr Asn Lys Tyr Thr Pro Gly Glu Thr Ser Ala Thr Val Thr Lys Asn 620	625	630	2046
tgg gat gac aat aat aac caa gac gga aaa cga cca act gaa atc aaa Trp Asp Asp Asn Asn Gln Asp Gly Lys Arg Pro Thr Glu Ile Lys 635	640	645	2094
gtt gag tta tat caa gat gga aaa gca aca gga aaa acg gca ata tta Val Glu Leu Tyr Gln Asp Gly Lys Ala Thr Gly Lys Thr Ala Ile Leu 650	655	660	2142
aat gaa tct aat aac tgg aca cat acg tgg aca gga tta gat gaa aaa Asn Glu Ser Asn Asn Trp Thr His Thr Trp Thr Gly Leu Asp Glu Lys 665	670	675	2190
gca aaa gga caa caa gta aaa tac aca gtc gag gaa tta aca aag gtc Ala Lys Gly Gln Gln Val Lys Tyr Thr Val Glu Glu Leu Thr Lys Val 685	690	695	2238
aaa ggt tat aca aca cat gtg gat aac aat gat atg ggt aac ttg att Lys Gly Tyr Thr Thr His Val Asp Asn Asn Asp Met Gly Asn Leu Ile 700	705	710	2286
gtg acg aat aaa tat acg cca gaa aca aca tca att agt ggt gaa aaa			2334

Val Thr Asn Lys Tyr Thr Pro Glu Thr Thr Ser Ile Ser Gly Glu Lys			
715	720	725	
gta tgg gac gac aaa gac aat caa gat ggt aag aga cca gaa aaa gtc			2382
Val Trp Asp Asp Lys Asp Asn Gln Asp Gly Lys Arg Pro Glu Lys Val			
730	735	740	
agt gtg aat tta ttg gct gat gga gag aaa gta aaa acg tta gac gtg			2430
Ser Val Asn Leu Leu Ala Asp Gly Glu Lys Val Lys Thr Leu Asp Val			
745	750	755	760
aca tct gaa aca aac tgg aag tac gaa ttt aaa gac tta ccg aag tat			2478
Thr Ser Glu Thr Asn Trp Lys Tyr Glu Phe Lys Asp Leu Pro Lys Tyr			
765	770	775	
gat gaa gga aag aaa ata gaa tat aca gtg acc gaa gat cac gta aaa			2526
Asp Glu Gly Lys Lys Ile Glu Tyr Thr Val Thr Glu Asp His Val Lys			
780	785	790	
gac tac aca aca gac atc aac ggt acg aca ata acg aac aag tat aca			2574
Asp Tyr Thr Thr Asp Ile Asn Gly Thr Thr Ile Thr Asn Lys Tyr Thr			
795	800	805	
cca gga gag aca tcg gca aca gta aca aaa aat tgg gat gac aat aat			2622
Pro Gly Glu Thr Ser Ala Thr Val Thr Lys Asn Trp Asp Asp Asn Asn			
810	815	820	
aac caa gac gga aaa cga cca act gaa atc aaa gtt gag tta tat caa			2670
Asn Gln Asp Gly Lys Arg Pro Thr Glu Ile Lys Val Glu Leu Tyr Gln			
825	830	835	840
gat gga aaa gca aca gga aaa acg gca ata tta aat gaa tct aat aac			2718
Asp Gly Lys Ala Thr Gly Lys Thr Ala Ile Leu Asn Glu Ser Asn Asn			
845	850	855	
tgg aca cat acg tgg aca gga tta gat gaa aaa gca aaa gga caa caa			2766
Trp Thr His Thr Trp Thr Gly Leu Asp Glu Lys Ala Lys Gly Gln Gln			
860	865	870	
gta aaa tac aca gtc gag gaa tta aca aag gtc aaa ggt tat aca aca			2814
Val Lys Tyr Thr Val Glu Glu Leu Thr Lys Val Lys Gly Tyr Thr Thr			
875	880	885	
cat gtg gat aac aat gat atg ggc aac ttg att gtg acg aat aaa tat			2862
His Val Asp Asn Asn Asp Met Gly Asn Leu Ile Val Thr Asn Lys Tyr			
890	895	900	
acg cca gaa aca aca tca att agt ggt gaa aaa gta tgg gac gac aaa			2910
Thr Pro Glu Thr Thr Ser Ile Ser Gly Glu Lys Val Trp Asp Asp Lys			
905	910	915	920
gac aat caa gat ggt aag aga cca gaa aaa gtc agt gtg aat tta ttg			2958
Asp Asn Gln Asp Gly Lys Arg Pro Glu Lys Val Ser Val Asn Leu Leu			
925	930	935	
gct aac gga gag aaa gta aaa acg tta gac gtg aca tct gaa aca aac			3006
Ala Asn Gly Glu Lys Val Lys Thr Leu Asp Val Thr Ser Glu Thr Asn			
940	945	950	
tgg aag tac gaa ttt aaa gac tta ccg aag tat gat gaa gga aag aaa			3054

Trp Lys Tyr Glu Phe Lys Asp Leu Pro Lys Tyr Asp Glu Gly Lys Lys  
 955 960 965

ata gaa tat aca gtg acc gaa gat cac gta aaa gac tac aca aca gac 3102  
 Ile Glu Tyr Thr Val Thr Glu Asp His Val Lys Asp Tyr Thr Thr Asp  
 970 975 980

atc aac ggt acg aca ata acg aac aag tat aca cca gga gag aca tcg 3150  
 Ile Asn Gly Thr Thr Ile Thr Asn Lys Tyr Thr Pro Gly Glu Thr Ser  
 985 990 995 1000

gca aca gta aca aaa aat tgg gat gac aat aat aac caa gac gga 3195  
 Ala Thr Val Thr Lys Asn Trp Asp Asp Asn Asn Asn Gln Asp Gly  
 1005 1010 1015

aaa cga cca act gaa atc aaa gtt gag tta tat caa gat gga aaa 3240  
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 1020 1025 1030

gca aca gga aaa acg gca ata tta aat gaa tct aat aac tgg aca 3285  
 Ala Thr Gly Lys Thr Ala Ile Leu Asn Glu Ser Asn Asn Trp Thr  
 1035 1040 1045

cat acg tgg aca gga tta gat gaa aaa gca aaa gga caa caa gta 3330  
 His Thr Trp Thr Gly Leu Asp Glu Lys Ala Lys Gly Gln Gln Val  
 1050 1055 1060

aaa tac aca gtc gat gaa tta aca aaa gtt aat ggc tat aca acg 3375  
 Lys Tyr Thr Val Asp Glu Leu Thr Lys Val Asn Gly Tyr Thr Thr  
 1065 1070 1075

cat gtg gat aac aat gat atg ggt aac ttg att gtg aca aat aaa 3420  
 His Val Asp Asn Asn Asp Met Gly Asn Leu Ile Val Thr Asn Lys  
 1080 1085 1090

tat acg ccg aaa aaa ccg aat aaa cca atc tat cct gaa aaa cca 3465  
 Tyr Thr Pro Lys Lys Pro Asn Lys Pro Ile Tyr Pro Glu Lys Pro  
 1095 1100 1105

aaa gac aaa aca cca cca act aaa cct gat cat tct aat aaa gtt 3510  
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 1110 1115 1120

aaa cca act ccc cca gat aag cca tca aaa gtg gat aag gat gat 3555  
 Lys Pro Thr Pro Pro Asp Lys Pro Ser Lys Val Asp Lys Asp Asp  
 1125 1130 1135

caa cct aaa gat aat aaa acc aaa cct gaa aat cct cta aaa gaa 3600  
 Gln Pro Lys Asp Asn Lys Thr Lys Pro Glu Asn Pro Leu Lys Glu  
 1140 1145 1150

tta cca aaa act ggt atg aag att ata act tca tgg att aca tgg 3645  
 Leu Pro Lys Thr Gly Met Lys Ile Ile Thr Ser Trp Ile Thr Trp  
 1155 1160 1165

gta ttt ata ggt ata ttg gga ctg tat tta att tta aga aaa aga 3690  
 Val Phe Ile Gly Ile Leu Gly Leu Tyr Leu Ile Leu Arg Lys Arg  
 1170 1175 1180

ttt aac tca taa accattataa ttatTTTt agataaggct attcttagtt 3742

Phe Asn Ser

ctatgtataa tacatgtata ttaataggc acttttaatc tgtatgtaag cagactaaga 3802  
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1 5 10 15

Ile Ile Thr Pro Leu Phe Asn Lys Asn Glu Ala Phe Ala Ala Arg Asp  
20 25 30

Ile Ser Ser Thr Asn Val Thr Asp Leu Thr Val Ser Pro Ser Lys Ile  
35 40 45

Glu Asp Gly Gly Lys Thr Thr Val Lys Met Thr Phe Asp Asp Lys Asn  
50 55 60

Gly Lys Ile Gln Asn Gly Asp Met Ile Lys Val Ala Trp Pro Thr Ser  
65 70 75 80

Gly Thr Val Lys Ile Glu Gly Tyr Ser Lys Thr Val Pro Leu Thr Val  
85 90 95

Lys Gly Glu Gln Val Gly Gln Ala Val Ile Thr Pro Asp Gly Ala Thr  
100 105 110

Ile Thr Phe Asn Asp Lys Val Glu Lys Leu Ser Asp Val Ser Gly Phe  
115 120 125

Ala Glu Phe Glu Val Gln Gly Arg Asn Leu Thr Gln Thr Asn Thr Ser  
130 135 140

Asp Asp Lys Val Ala Thr Ile Thr Ser Gly Asn Lys Ser Thr Asn Val  
145 150 155 160

Thr Val His Lys Ser Glu Ala Gly Thr Ser Ser Val Phe Tyr Tyr Lys  
165 170 175

Thr Gly Asp Met Leu Pro Glu Asp Thr Thr His Val Arg Trp Phe Leu  
180 185 190

Asn Ile Asn Asn Glu Lys Ser Tyr Val Ser Lys Asp Ile Thr Ile Lys  
195 200 205

Asp Gln Ile Gln Gly Gly Gln Gln Leu Asp Leu Ser Thr Leu Asn Ile  
210 215 220

Asn Val Thr Gly Thr His Ser Asn Tyr Tyr Ser Gly Gln Ser Ala Ile  
225 230 235 240

Thr Asp Phe Glu Lys Ala Phe Pro Gly Ser Lys Ile Thr Val Asp Asn  
245 250 255

Thr Lys Asn Thr Ile Asp Val Thr Ile Pro Gln Gly Tyr Gly Ser Tyr  
260 265 270

Asn Ser Phe Ser Ile Asn Tyr Lys Thr Lys Ile Thr Asn Glu Gln Gln  
275 280 285

Lys Glu Phe Val Asn Asn Ser Gln Ala Trp Tyr Gln Glu His Gly Lys  
290 295 300

Glu Glu Val Asn Gly Lys Ser Phe Asn His Thr Val His Asn Ile Asn  
305 310 315 320

Ala Asn Ala Gly Ile Glu Gly Thr Val Lys Gly Glu Leu Lys Val Leu  
325 330 335

Lys Gln Asp Lys Asp Thr Lys Ala Pro Ile Ala Asn Val Lys Phe Lys  
340 345 350

Leu Ser Lys Lys Asp Gly Ser Val Val Lys Asp Asn Gln Lys Glu Ile  
355 360 365

Glu Ile Ile Thr Asp Ala Asn Gly Ile Ala Asn Ile Lys Ala Leu Pro  
370 375 380

Ser Gly Asp Tyr Ile Leu Lys Glu Ile Glu Ala Pro Arg Pro Tyr Thr  
385 390 395 400

Phe Asp Lys Asp Lys Glu Tyr Pro Phe Thr Met Lys Asp Thr Asp Asn  
405 410 415

Gln Gly Tyr Phe Thr Thr Ile Glu Asn Ala Lys Ala Ile Glu Lys Thr  
420 425 430

Lys Asp Val Ser Ala Gln Lys Val Trp Glu Gly Thr Gln Lys Val Lys  
435 440 445

Pro Thr Ile Tyr Phe Lys Leu Tyr Lys Gln Asp Asp Asn Gln Asn Thr  
 450 455 460

Thr Pro Val Asp Lys Ala Glu Ile Lys Lys Leu Glu Asp Gly Thr Thr  
 465 470 475 480

Lys Val Thr Trp Ser Asn Leu Pro Glu Asn Asp Lys Asn Gly Lys Ala  
 485 490 495

Ile Lys Tyr Leu Val Lys Glu Val Asn Ala Gln Gly Glu Asp Thr Thr  
 500 505 510

Pro Glu Gly Tyr Thr Lys Lys Glu Asn Gly Leu Val Val Thr Asn Thr  
 515 520 525

Glu Lys Pro Ile Glu Thr Thr Ser Ile Ser Gly Glu Lys Val Trp Asp  
 530 535 540

Asp Lys Asp Asn Gln Asp Gly Lys Arg Pro Glu Lys Val Ser Val Asn  
 545 550 555 560

Leu Leu Ala Asn Gly Glu Lys Val Lys Thr Leu Asp Val Thr Ser Glu  
 565 570 575

Thr Asn Trp Lys Tyr Glu Phe Lys Asp Leu Pro Lys Tyr Asp Glu Gly  
 580 585 590

Lys Lys Ile Glu Tyr Thr Val Thr Glu Asp His Val Lys Asp Tyr Thr  
 595 600 605

Thr Asp Ile Asn Gly Thr Thr Ile Thr Asn Lys Tyr Thr Pro Gly Glu  
 610 615 620

Thr Ser Ala Thr Val Thr Lys Asn Trp Asp Asp Asn Asn Asn Gln Asp  
 625 630 635 640

Gly Lys Arg Pro Thr Glu Ile Lys Val Glu Leu Tyr Gln Asp Gly Lys  
 645 650 655

Ala Thr Gly Lys Thr Ala Ile Leu Asn Glu Ser Asn Asn Trp Thr His  
 660 665 670

Thr Trp Thr Gly Leu Asp Glu Lys Ala Lys Gly Gln Gln Val Lys Tyr  
 675 680 685

Thr Val Glu Glu Leu Thr Lys Val Lys Gly Tyr Thr Thr His Val Asp  
 690 695 700

Asn Asn Asp Met Gly Asn Leu Ile Val Thr Asn Lys Tyr Thr Pro Glu  
 705 710 715 720

Thr Thr Ser Ile Ser Gly Glu Lys Val Trp Asp Asp Lys Asp Asn Gln  
 725 730 735

Asp Gly Lys Arg Pro Glu Lys Val Ser Val Asn Leu Leu Ala Asp Gly  
 740 745 750

Glu Lys Val Lys Thr Leu Asp Val Thr Ser Glu Thr Asn Trp Lys Tyr  
 755 760 765

Glu Phe Lys Asp Leu Pro Lys Tyr Asp Glu Gly Lys Lys Ile Glu Tyr  
 770 775 780

Thr Val Thr Glu Asp His Val Lys Asp Tyr Thr Thr Asp Ile Asn Gly  
 785 790 795 800

Thr Thr Ile Thr Asn Lys Tyr Thr Pro Gly Glu Thr Ser Ala Thr Val  
 805 810 815

Thr Lys Asn Trp Asp Asp Asn Asn Gln Asp Gly Lys Arg Pro Thr  
 820 825 830

Glu Ile Lys Val Glu Leu Tyr Gln Asp Gly Lys Ala Thr Gly Lys Thr  
 835 840 845

Ala Ile Leu Asn Glu Ser Asn Asn Trp Thr His Thr Trp Thr Gly Leu  
 850 855 860

Asp Glu Lys Ala Lys Gly Gln Gln Val Lys Tyr Thr Val Glu Glu Leu  
 865 870 875 880

Thr Lys Val Lys Gly Tyr Thr Thr His Val Asp Asn Asn Asp Met Gly  
 885 890 895

Asn Leu Ile Val Thr Asn Lys Tyr Thr Pro Glu Thr Thr Ser Ile Ser  
 900 905 910

Gly Glu Lys Val Trp Asp Asp Lys Asp Asn Gln Asp Gly Lys Arg Pro  
 915 920 925

Glu Lys Val Ser Val Asn Leu Leu Ala Asn Gly Glu Lys Val Lys Thr  
 930 935 940

Leu Asp Val Thr Ser Glu Thr Asn Trp Lys Tyr Glu Phe Lys Asp Leu  
 945 950 955 960

Pro Lys Tyr Asp Glu Gly Lys Lys Ile Glu Tyr Thr Val Thr Glu Asp  
 965 970 975

His Val Lys Asp Tyr Thr Thr Asp Ile Asn Gly Thr Thr Ile Thr Asn  
 980 985 990

Lys Tyr Thr Pro Gly Glu Thr Ser Ala Thr Val Thr Lys Asn Trp Asp  
 995 1000 1005

Asp Asn Asn Asn Gln Asp Gly Lys Arg Pro Thr Glu Ile Lys Val  
 1010 1015 1020

Glu Leu Tyr Gln Asp Gly Lys Ala Thr Gly Lys Thr Ala Ile Leu  
 1025 1030 1035

Asn Glu Ser Asn Asn Trp Thr His Thr Trp Thr Gly Leu Asp Glu  
 1040 1045 1050

Lys Ala Lys Gly Gln Gln Val Lys Tyr Thr Val Asp Glu Leu Thr  
 1055 1060 1065

Lys Val Asn Gly Tyr Thr Thr His Val Asp Asn Asn Asp Met Gly  
 1070 1075 1080

Asn Leu Ile Val Thr Asn Lys Tyr Thr Pro Lys Lys Pro Asn Lys  
 1085 1090 1095

Pro Ile Tyr Pro Glu Lys Pro Lys Asp Lys Thr Pro Pro Thr Lys  
 1100 1105 1110

Pro Asp His Ser Asn Lys Val Lys Pro Thr Pro Pro Asp Lys Pro  
 1115 1120 1125

Ser Lys Val Asp Lys Asp Asp Gln Pro Lys Asp Asn Lys Thr Lys  
 1130 1135 1140

Pro Glu Asn Pro Leu Lys Glu Leu Pro Lys Thr Gly Met Lys Ile  
 1145 1150 1155

Ile Thr Ser Trp Ile Thr Trp Val Phe Ile Gly Ile Leu Gly Leu  
 1160 1165 1170

Tyr Leu Ile Leu Arg Lys Arg Phe Asn Ser  
 1175 1180

<210> 46 <211> 9 <212> PRT <213> Homo sapiens <220> <221>  
 MISC\_FEATURE <222> (4)..(4) <223> Xaa can be any amino acid  
<220> <221> MISC\_FEATURE <222> (6)..(7) <223> Xaa can be any amino  
acid

<400> 46

Ile Leu Val Xaa Tyr Xaa Xaa Leu Val  
 1 5

<210> 49 <211> 237 <212> PRT <213> Homo sapiens <400> 49

Met Thr Ser Glu Ile Thr Tyr Ala Glu Val Arg Phe Lys Asn Glu Phe  
 1 5 10 15

Lys Ser Ser Gly Ile Asn Thr Ala Ser Ser Ala Ala Ser Lys Glu Arg  
 20 25 30

Thr Ala Pro His Lys Ser Asn Thr Gly Phe Pro Lys Leu Leu Cys Ala  
 35 40 45

Ser Leu Leu Ile Phe Phe Leu Leu Leu Ala Ile Ser Phe Phe Ile Ala  
 50 55 60

Phe Val Ile Phe Phe Gln Lys Tyr Ser Gln Leu Leu Glu Lys Lys Thr  
 65 70 75 80

Thr Lys Glu Leu Val His Thr Thr Leu Glu Cys Val Lys Lys Asn Met  
 85 90 95

Pro Val Glu Glu Thr Ala Trp Ser Cys Cys Pro Lys Asn Trp Lys Ser  
 100 105 110

Phe Ser Ser Asn Cys Tyr Phe Ile Ser Thr Glu Ser Ala Ser Trp Gln

115

120

125

Asp Ser Glu Lys Asp Cys Ala Arg Met Glu Ala His Leu Leu Val Ile  
 130 135 140

Asn Thr Gln Glu Glu Gln Asp Phe Ile Phe Gln Asn Leu Gln Glu Glu  
 145 150 155 160

Ser Ala Tyr Phe Val Gly Leu Ser Asp Pro Glu Gly Gln Arg His Trp  
 165 170 175

Gln Trp Val Asp Gln Thr Pro Tyr Asn Glu Ser Ser Thr Phe Trp His  
 180 185 190

Pro Arg Glu Pro Ser Asp Pro Asn Glu Arg Cys Val Val Leu Asn Phe  
 195 200 205

Arg Lys Ser Pro Lys Arg Trp Gly Trp Asn Asp Val Asn Cys Leu Gly  
 210 215 220

Pro Gln Arg Ser Val Cys Glu Met Met Lys Ile His Leu  
 225 230 235

<210> 53 <211> 32 <212> PRT <213> Homo sapiens <220> <221>  
 MISC\_FEATURE <222> (2)..(2) <223> Xaa is Ile or Leu

<220> <221> MISC\_FEATURE <222> (3)..(3) <223> Xaa can be any amino acid

<220> <221> MISC\_FEATURE <222> (6)..(6) <223> Xaa can be any amino acid

<220> <221> MISC\_FEATURE <222> (8)..(25) <223> Xaa can be any amino acid

<220> <221> MISC\_FEATURE <222> (26)..(26) <223> Xaa is Thr or Asn

<220> <221> MISC\_FEATURE <222> (31)..(31) <223> Xaa is Ile or Val

<220> <221> MISC\_FEATURE <222> (32)..(32) <223> Xaa is Lys or Arg

<400> 53

Glu Xaa Xaa Tyr Ala Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Glu Tyr Ser Glu Xaa Xaa  
 20 25 30

<210> 54 <211> 6 <212> PRT <213> Homo sapiens <220> <221>

MISC\_FEATURE <222> (1)..(1) <223> Xaa is Thr or Asn

<220> <221> MISC\_FEATURE <222> (6)..(6) <223> Xaa is Ile or Val

<400> 54

Xaa Glu Tyr Ser Glu Xaa

1 5

<210> 56 <211> 626 <212> PRT <213> Homo sapiens <400> 56

Met Ile Phe Leu Thr Ala Leu Pro Leu Phe Trp Ile Met Ile Ser Ala  
1 5 10 15

Ser Arg Gly Gly His Trp Gly Ala Trp Met Pro Ser Ser Ile Ser Ala  
20 25 30

Phe Glu Gly Thr Cys Val Ser Ile Pro Cys Arg Phe Asp Phe Pro Asp  
35 40 45

Glu Leu Arg Pro Ala Val Val His Gly Val Trp Tyr Phe Asn Ser Pro  
50 55 60

Tyr Pro Lys Asn Tyr Pro Pro Val Val Phe Lys Ser Arg Thr Gln Val  
65 70 75 80

Val His Glu Ser Phe Gln Gly Arg Ser Arg Leu Leu Gly Asp Leu Gly  
85 90 95

Leu Arg Asn Cys Thr Leu Leu Leu Ser Asn Val Ser Pro Glu Leu Gly  
100 105 110

Gly Lys Tyr Tyr Phe Arg Gly Asp Leu Gly Gly Tyr Asn Gln Tyr Thr  
115 120 125

Phe Ser Glu His Ser Val Leu Asp Ile Val Asn Thr Pro Asn Ile Val  
130 135 140

Val Pro Pro Glu Val Val Ala Gly Thr Glu Val Glu Val Ser Cys Met  
145 150 155 160

Val Pro Asp Asn Cys Pro Glu Leu Arg Pro Glu Leu Ser Trp Leu Gly  
165 170 175

His Glu Gly Leu Gly Glu Pro Ala Val Leu Gly Arg Leu Arg Glu Asp  
 180 185 190

Glu Gly Thr Trp Val Gln Val Ser Leu Leu His Phe Val Pro Thr Arg  
 195 200 205

Glu Ala Asn Gly His Arg Leu Gly Cys Gln Ala Ser Phe Pro Asn Thr  
 210 215 220

Thr Leu Gln Phe Glu Gly Tyr Ala Ser Met Asp Val Lys Tyr Pro Pro  
 225 230 235 240

Val Ile Val Glu Met Asn Ser Ser Val Glu Ala Ile Glu Gly Ser His  
 245 250 255

Val Ser Leu Leu Cys Gly Ala Asp Ser Asn Pro Pro Pro Leu Leu Thr  
 260 265 270

Trp Met Arg Asp Gly Thr Val Leu Arg Glu Ala Val Ala Glu Ser Leu  
 275 280 285

Leu Leu Glu Leu Glu Glu Val Thr Pro Ala Glu Asp Gly Val Tyr Ala  
 290 295 300

Cys Leu Ala Glu Asn Ala Tyr Gly Gln Asp Asn Arg Thr Val Gly Leu  
 305 310 315 320

Ser Val Met Tyr Ala Pro Trp Lys Pro Thr Val Asn Gly Thr Met Val  
 325 330 335

Ala Val Glu Gly Glu Thr Val Ser Ile Leu Cys Ser Thr Gln Ser Asn  
 340 345 350

Pro Asp Pro Ile Leu Thr Ile Phe Lys Glu Lys Gln Ile Leu Ser Thr  
 355 360 365

Val Ile Tyr Glu Ser Glu Leu Gln Leu Glu Leu Pro Ala Val Ser Pro  
 370 375 380

Glu Asp Asp Gly Glu Tyr Trp Cys Val Ala Glu Asn Gln Tyr Gly Gln  
 385 390 395 400

Arg Ala Thr Ala Phe Asn Leu Ser Val Glu Phe Ala Pro Val Leu Leu  
 405 410 415

Leu Glu Ser His Cys Ala Ala Ala Arg Asp Thr Val Gln Cys Leu Cys  
420 425 430

Val Val Lys Ser Asn Pro Glu Pro Ser Val Ala Phe Glu Leu Pro Ser  
435 440 445

Arg Asn Val Thr Val Asn Glu Ser Glu Arg Glu Phe Val Tyr Ser Glu  
450 455 460

Arg Ser Gly Leu Val Leu Thr Ser Ile Leu Thr Leu Arg Gly Gln Ala  
465 470 475 480

Gln Ala Pro Pro Arg Val Ile Cys Thr Ala Arg Asn Leu Tyr Gly Ala  
485 490 495

Lys Ser Leu Glu Leu Pro Phe Gln Gly Ala His Arg Leu Met Trp Ala  
500 505 510

Lys Ile Gly Pro Val Gly Ala Val Val Ala Phe Ala Ile Leu Ile Ala  
515 520 525

Ile Val Cys Tyr Ile Thr Gln Thr Arg Arg Lys Lys Asn Val Thr Glu  
530 535 540

Ser Pro Ser Phe Ser Ala Gly Asp Asn Pro Pro Val Leu Phe Ser Ser  
545 550 555 560

Asp Phe Arg Ile Ser Gly Ala Pro Glu Lys Tyr Glu Ser Glu Arg Arg  
565 570 575

Leu Gly Ser Glu Arg Arg Leu Leu Gly Leu Arg Gly Glu Pro Pro Glu  
580 585 590

Leu Asp Leu Ser Tyr Ser His Ser Asp Leu Gly Lys Arg Pro Thr Lys  
595 600 605

Asp Ser Tyr Thr Leu Thr Glu Glu Leu Ala Glu Tyr Ala Glu Ile Arg  
610 615 620

Val Lys  
625

<210> 63 <211> 209 <212> PRT <213> Homo sapiens <400> 63  
 Met Ala Leu Leu Ala Glu His Leu Leu Lys Pro Leu Pro Ala Asp Lys  
 1 5 10 15

Gln Ile Glu Thr Gly Pro Phe Leu Glu Ala Val Ser His Leu Pro Pro  
 20 25 30

Phe Phe Asp Cys Leu Gly Ser Pro Val Phe Thr Pro Ile Lys Ala Asp  
 35 40 45

Ile Ser Gly Asn Ile Thr Lys Ile Lys Ala Val Tyr Asp Thr Asn Pro  
 50 55 60

Ala Lys Phe Arg Thr Leu Gln Asn Ile Leu Glu Val Glu Lys Glu Met  
 65 70 75 80

Tyr Gly Ala Glu Trp Pro Lys Val Gly Ala Thr Leu Ala Leu Met Trp  
 85 90 95

Leu Lys Arg Gly Leu Arg Phe Ile Gln Val Phe Leu Gln Ser Ile Cys  
 100 105 110

Asp Gly Glu Arg Asp Glu Asn His Pro Asn Leu Ile Arg Val Asn Ala  
 115 120 125

Thr Lys Ala Tyr Glu Met Ala Leu Lys Lys Tyr His Gly Trp Ile Val  
 130 135 140

Gln Lys Ile Phe Gln Ala Ala Leu Tyr Ala Ala Pro Tyr Lys Ser Asp  
 145 150 155 160

Phe Leu Lys Ala Leu Ser Lys Gly Gln Asn Val Thr Glu Glu Cys  
 165 170 175

Leu Glu Lys Ile Arg Leu Phe Leu Val Asn Tyr Thr Ala Thr Ile Asp  
 180 185 190

Val Ile Tyr Glu Met Tyr Thr Gln Met Asn Ala Glu Leu Asn Tyr Lys  
 195 200 205

Val

<210> 64 <211> 276 <212> PRT <213> Homo sapiens <400> 64

Met Gly Asn Ser Met Lys Ser Thr Pro Ala Pro Ala Glu Arg Pro Leu  
 1 5 10 15

Pro Asn Pro Glu Gly Leu Asp Ser Asp Phe Leu Ala Val Leu Ser Asp  
 20 25 30

Tyr Pro Ser Pro Asp Ile Ser Pro Pro Ile Phe Arg Arg Gly Glu Lys  
 35 40 45

Leu Arg Val Ile Ser Asp Glu Gly Gly Trp Trp Lys Ala Ile Ser Leu  
 50 55 60

Ser Thr Gly Arg Glu Ser Tyr Ile Pro Gly Ile Cys Val Ala Arg Val  
 65 70 75 80

Tyr His Gly Trp Leu Phe Glu Gly Leu Gly Arg Asp Lys Ala Glu Glu  
 85 90 95

Leu Leu Gln Leu Pro Asp Thr Lys Val Gly Ser Phe Met Ile Arg Glu  
 100 105 110

Ser Glu Thr Lys Lys Gly Phe Tyr Ser Leu Ser Val Arg His Arg Gln  
 115 120 125

Val Lys His Tyr Arg Ile Phe Arg Leu Pro Asn Asn Trp Tyr Tyr Ile  
 130 135 140

Ser Pro Arg Leu Thr Phe Gln Cys Leu Glu Asp Leu Val Asn His Tyr  
 145 150 155 160

Ser Glu Val Ala Asp Gly Leu Cys Cys Val Leu Thr Thr Pro Cys Leu  
 165 170 175

Thr Gln Ser Thr Ala Ala Pro Ala Val Arg Ala Ser Ser Ser Pro Val  
 180 185 190

Thr Leu Arg Gln Lys Thr Val Asp Trp Arg Arg Val Ser Arg Leu Gln  
 195 200 205

Glu Asp Pro Glu Gly Thr Glu Asn Pro Leu Gly Val Asp Glu Ser Leu  
 210 215 220

Phe Ser Tyr Gly Leu Arg Glu Ser Ile Ala Ser Tyr Leu Ser Leu Thr  
 225 230 235 240

Ser Glu Asp Asn Thr Ser Phe Asp Arg Lys Lys Lys Ser Ile Ser Leu  
245 250 255

Met Tyr Gly Gly Ser Lys Arg Lys Ser Ser Phe Phe Ser Ser Pro Pro  
260 265 270

Tyr Phe Glu Asp  
275

<210> 65 <211> 18 <212> PRT <213> Homo sapiens <400> 65

Lys Arg Phe Lys Gln Asp Gly Gly Trp Ser His Trp Ser Pro Trp Ser  
 1 5 10 15

Ser Cys

<210> 66 <211> 18 <212> PRT <213> Homo sapiens <400> 66

Lys Arg Ala Lys Ala Ala Gly Gly Trp Ser His Trp Ser Pro Trp Ser  
 1 5 10 15

Ser Cys

<210> 67 <211> 1784 <212> DNA <213> *Staphylococcus aureus* <220>  
<221> CDS <222> (184)..(1635) <223>

<400> 67	tcgaaatagc gtgattttgc gggtttaagc cttttacttc ctgaataaaat ctttcagcaa	60	
	aatattttttt ttataagtttgg taaaacttac ctttaaaattt aattataaaat atagattttt	120	
	gtattgc <del>aa</del> t acataattcg ttatattatg atgactatac aaatacatac agggggatt	180	
	aat ttg aaa aag aaa aac att tat tca att cgt aaa cta ggt gta ggt	228	
	Leu Lys Lys Lys Asn Ile Tyr Ser Ile Arg Lys Leu Gly Val Gly		
1	5	10	15
	att gca tct gta act tta ggt aca tta ctt ata tct ggt ggc gta aca	276	
Ile Ala Ser Val Thr Leu Gly Thr Leu Leu Ile Ser Gly Gly Val Thr			
20	25	30	
cct gct gca aat gct gcg caa cac gat gaa gct caa caa aat gct ttt	324		
Pro Ala Ala Asn Ala Ala Gln His Asp Glu Ala Gln Gln Asn Ala Phe			

tat caa gtc tta aat atg cct aac tta aat gct gat caa cgc aat ggt  
 Tyr Gln Val Leu Asn Met Pro Asn Leu Asn Ala Asp Gln Arg Asn Gly  
       50                 55                 60

ttt atc caa agc ctt aaa gat gat cca agc caa agt gct aac gtt tta 420  
Phe Ile Gln Ser Ile Lys Asp Asp Pro Ser Gln Ser Ala Asn Val Leu

65	70	75	
ggt gaa gct caa aaa ctt aat gac tct caa gct cca aaa gct gat gcg Gly Glu Ala Gln Lys Leu Asn Asp Ser Gln Ala Pro Lys Ala Asp Ala 80 85 90 95			468
caa caa aat aac ttc gac aaa gat caa caa agc gcc ttc tat gaa atc Gln Gln Asn Asn Phe Asp Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile 100 105 110			516
ttg aac atg cct aac tta aac gaa gcg caa cgt aac ggc ttc att caa Leu Asn Met Pro Asn Leu Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln 115 120 125			564
agt ctt aaa gac gac cca agc caa agc act aac gtt tta ggt gaa gct Ser Leu Lys Asp Asp Pro Ser Gln Ser Thr Asn Val Leu Gly Glu Ala 130 135 140			612
aaa aaa tta aac gaa tct caa gca ccg aaa gct gat aac aat ttc aac Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn Asn Phe Asn 145 150 155			660
aaa gaa caa caa aat gct ttc tat gaa atc ttg aat atg cct aac tta Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu 160 165 170 175			708
aac gaa gaa caa ccg aat ggt ttc atc caa agc tta aaa gat gac cca Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro 180 185 190			756
agc caa agt gct aac cta ttg tca gaa gct aaa aag tta aat gaa tct Ser Gln Ser Ala Asn Leu Leu Ser Glu Ala Lys Lys Leu Asn Glu Ser 195 200 205			804
caa gca ccg aaa gcg gat aac aaa ttc aac aaa gaa caa caa aat gct Gln Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala 210 215 220			852
ttc tat gaa atc tta cat tta cct aac tta aac gaa gaa caa ccg aat Phe Tyr Glu Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn 225 230 235			900
ggt ttc atc caa agc cta aaa gat gac cca agc caa agc gct aac ctt Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu 240 245 250 255			948
tta gca gaa gct aaa aag cta aat gat gct caa gca cca aaa gct gac Leu Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala Asp 260 265 270			996
aac aaa ttc aac aaa gaa caa caa aat gct ttc tat gaa att tta cat Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His 275 280 285			1044
tta cct aac tta act gaa caa cgt aac ggc ttc atc caa agc ctt Leu Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu 290 295 300			1092
aaa gac gat cct tcg gtg agc aaa gaa att tta gca gaa gct aaa aag Lys Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys			1140

305	310	315	
ct aac gat gct caa gca cca aaa gag gaa gac aat aac aag cct ggc Leu Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Asn Lys Pro Gly 320 325 330 335			1188
aaa gaa gac aat aac aag cct ggc aaa gaa gac aat aac aag cct ggc Lys Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly 340 345 350			1236
aaa gaa gac aac aac aag cct ggc aaa gaa gac aac aac aag cct ggt Lys Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly 355 360 365			1284
aaa gaa gac aac aac aag cct ggc aaa gaa gac ggc aac aag cct ggt Lys Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly 370 375 380			1332
aaa gaa gac aac aaa aaa cct ggt aaa gaa gat ggc aac aag cct ggt Lys Glu Asp Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly 385 390 395			1380
aaa gaa gac aac aaa aaa cct ggt aaa gaa gac ggc aac aag cct ggc Lys Glu Asp Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly 400 405 410 415			1428
aaa gaa gat ggc aac aaa cct ggt aaa gaa gat ggt aac gga gta cat Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Gly Val His 420 425 430			1476
gtc gtt aaa ctt ggt gat aca gta aat gac att gca aaa gca aac ggc Val Val Lys Leu Gly Asp Thr Val Asn Asp Ile Ala Lys Ala Asn Gly 435 440 445			1524
act act gct gac aaa att gct gca gat aac aaa ttg gct gat aaa aac Thr Thr Ala Asp Lys Ile Ala Ala Asp Asn Lys Leu Ala Asp Lys Asn 450 455 460			1572
atg atc aaa ctt ggt caa gaa ctt gtt gat aag aag caa cca caa Met Ile Lys Leu Gly Gln Glu Leu Val Val Asp Lys Gln Pro Gln 465 470 475			1620
acc atg cag agc taa caaagctcaa gcattatcag aaactggcga agaaaaatcca Thr Met Gln Ser 480			1675
ttcatcgta caactgtatt tggtgatttcattagcct tagtgtcagc gttattagct ggacgtcgta cgactataaaaacaaaca atacacaacg atagatatac			1735 1784
<210> 68 <211> 483 <212> PRT <213> Staphylococcus aureus <400> 68 Leu Lys Lys Lys Asn Ile Tyr Ser Ile Arg Lys Leu Gly Val Gly Ile 1 5 10 15			
Ala Ser Val Thr Leu Gly Thr Leu Leu Ile Ser Gly Gly Val Thr Pro 20 25 30			

Ala Ala Asn Ala Ala Gln His Asp Glu Ala Gln Gln Asn Ala Phe Tyr  
35 40 45

Gln Val Leu Asn Met Pro Asn Leu Asn Ala Asp Gln Arg Asn Gly Phe  
50 55 60

Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Val Leu Gly  
65 70 75 80

Glu Ala Gln Lys Leu Asn Asp Ser Gln Ala Pro Lys Ala Asp Ala Gln  
85 90 95

Gln Asn Asn Phe Asp Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu  
100 105 110

Asn Met Pro Asn Leu Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln Ser  
115 120 125

Leu Lys Asp Asp Pro Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys  
130 135 140

Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn Asn Phe Asn Lys  
145 150 155 160

Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn  
165 170 175

Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser  
180 185 190

Gln Ser Ala Asn Leu Leu Ser Glu Ala Lys Lys Leu Asn Glu Ser Gln  
195 200 205

Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe  
210 215 220

Tyr Glu Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly  
225 230 235 240

Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu  
245 250 255

Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala Asp Asn  
260 265 270

Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu  
 275 280 285

Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys  
 290 295 300

Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu  
 305 310 315 320

Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Asn Lys Pro Gly Lys  
 325 330 335

Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly Lys  
 340 345 350

Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly Lys  
 355 360 365

Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
 370 375 380

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
 385 390 395 400

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
 405 410 415

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Gly Val His Val  
 420 425 430

Val Lys Leu Gly Asp Thr Val Asn Asp Ile Ala Lys Ala Asn Gly Thr  
 435 440 445

Thr Ala Asp Lys Ile Ala Ala Asp Asn Lys Leu Ala Asp Lys Asn Met  
 450 455 460

Ile Lys Leu Gly Gln Glu Leu Val Val Asp Lys Lys Gln Pro Gln Thr  
 465 470 475 480

Met Gln Ser

<210> 69 <211> 279 <212> DNA <213> Homo sapiens <220> <221> CDS  
 <222> (1)..(279) <223>

<400> 69  
 gtg aag ccc aag gcc tgg ctg tcc cgt ggc ccc agt cct ggc cct ggc 48  
 Val Lys Pro Lys Ala Trp Leu Ser Arg Gly Pro Ser Pro Gly Pro Gly  
 1 5 10 15

cgt ctg ctg ctg gtg tgc cat gtc tca gga ttc tac cca aag cct gta 96  
 Arg Leu Leu Val Cys His Val Ser Gly Phe Tyr Pro Lys Pro Val  
 20 25 30

tgg gtg aag tgg atg cgg ggt gag cag gag cag cag ggc act cag cca 144  
 Trp Val Lys Trp Met Arg Gly Glu Gln Glu Gln Gly Thr Gln Pro  
 35 40 45

ggg gac atc ctg ccc aat gct gac gag aca tgg tat ctc cga gca acc 192  
 Gly Asp Ile Leu Pro Asn Ala Asp Glu Thr Trp Tyr Leu Arg Ala Thr  
 50 55 60

ctg gat gtg gtg gct ggg gag gca gct ggc ctg tcc tgt cgg gtg aag 240  
 Leu Asp Val Val Ala Gly Glu Ala Ala Gly Leu Ser Cys Arg Val Lys  
 65 70 75 80

cac agc agt cta gag ggc cag gac atc gtc ctc tac tgg 279  
 His Ser Ser Leu Glu Gly Gln Asp Ile Val Leu Tyr Trp  
 85 90

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 Val Lys Pro Lys Ala Trp Leu Ser Arg Gly Pro Ser Pro Gly Pro Gly  
 1 5 10 15

Arg Leu Leu Leu Val Cys His Val Ser Gly Phe Tyr Pro Lys Pro Val  
 20 25 30

Trp Val Lys Trp Met Arg Gly Glu Gln Glu Gln Gly Thr Gln Pro  
 35 40 45

Gly Asp Ile Leu Pro Asn Ala Asp Glu Thr Trp Tyr Leu Arg Ala Thr  
 50 55 60

Leu Asp Val Val Ala Gly Glu Ala Ala Gly Leu Ser Cys Arg Val Lys  
 65 70 75 80

His Ser Ser Leu Glu Gly Gln Asp Ile Val Leu Tyr Trp  
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agctttctc ggAGCCTATC tgggCTGCTC aaACTTCAG aatCTACCAG cc ATG Met 1	175
gtgagtcaga cagactgtct tggggTGGAA ctggAGCCAA CCTGAGGAAT CTCAGGGTCC	235
tggcaggagt CTCCCTGTCC CCCTACTTC TCCTCAg GAG CGT GTG CTT GGC TTG Glu Arg Val Leu Gly Leu	290
5	
ttg ctg ttg ctt ctg gtg cac gcc tct ccc gcc cca cca gag ccc tgc Leu Leu Leu Leu Leu Val His Ala Ser Pro Ala Pro Pro Glu Pro Cys	338
10 15 20	
gag cta gac gag gaa agt tgc tcc tgc aac ttc tca gat ccg aag cca Glu Leu Asp Glu Ser Cys Ser Cys Asn Phe Ser Asp Pro Lys Pro	386
25 30 35	
gat tgg tcc agc gct ttc aat tgt ttg ggg gcg gca gat gtg gaa ttg Asp Trp Ser Ser Ala Phe Asn Cys Leu Gly Ala Ala Asp Val Glu Leu	434
40 45 50 55	
tac ggc ggc ggc cgc agc ctg gaa tac ctt cta aag cgt gtg gac acg Tyr Gly Gly Arg Ser Leu Glu Tyr Leu Leu Lys Arg Val Asp Thr	482
60 65 70	
gaa gca gat ctg ggg cag ttc act gat att atc aag tct ctg tcc tta Glu Ala Asp Leu Gly Gln Phe Thr Asp Ile Ile Lys Ser Leu Ser Leu	530
75 80 85	
aag cgg ctt acg gtg cgg gcc gcg cgg att cct agt ccg att cta ttc Lys Arg Leu Thr Val Arg Ala Ala Arg Ile Pro Ser Arg Ile Leu Phe	578
90 95 100	
gga gcc ctg cgt gtg ctc ggg att tcc ggc ctc cag gaa ctg act ctt Gly Ala Leu Arg Val Leu Gly Ile Ser Gly Leu Gln Glu Leu Thr Leu	626
105 110 115	
gaa aat ctc gag gta acc ggc acc gcg ccg cca ccg ctt ctg gaa gcc Glu Asn Leu Glu Val Thr Gly Thr Ala Pro Pro Leu Leu Glu Ala	674
120 125 130 135	
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140 145 150	
aca agg gat gcc tgg ctc gca gaa ctg cag cag tgg cta aag cct gga Thr Arg Asp Ala Trp Leu Ala Glu Leu Gln Gln Trp Leu Lys Pro Gly	770
155 160 165	
ctc aag gta ctg agt att gcc caa gca cac tca ctc aac ttt tcc tgc Leu Lys Val Leu Ser Ile Ala Gln Ala His Ser Leu Asn Phe Ser Cys	818
170 175 180	
gaa cag gtc cgc gtc ttc cct gcc ctc tcc acc tta gac ctg tct gac Glu Gln Val Arg Val Phe Pro Ala Leu Ser Thr Leu Asp Leu Ser Asp	866

185	190	195	
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aag ttc ccg acc ctc caa gtt tta gcg ctg cgt aac gcg ggg atg gag Lys Phe Pro Thr Leu Gln Val Leu Ala Leu Arg Asn Ala Gly Met Glu 220 225 230 235			962
acg ccc agc ggc gtg tgc tct gcg ctg gcc gca gca agg gta cag ctg Thr Pro Ser Gly Val Cys Ser Ala Leu Ala Ala Arg Val Gln Leu 235 240 245			1010
caa gga cta gac ctt agt cac aat tca ctg cgg gat gct gca ggc gct Gln Gly Leu Asp Leu Ser His Asn Ser Leu Arg Asp Ala Ala Gly Ala 250 255 260			1058
ccg agt tgt gac tgg ccc agt cag cta aac tcg ctc aat ctg tct ttc Pro Ser Cys Asp Trp Pro Ser Gln Leu Asn Ser Leu Asn Leu Ser Phe 265 270 275			1106
act ggg ctg aag cag gta cct aaa ggg ctg cca gcc aag ctc agc gtg Thr Gly Leu Lys Gln Val Pro Lys Gly Leu Pro Ala Lys Leu Ser Val 280 285 290 295			1154
ctg gat ctc agt tac aac agg ctg gat agg aac cct agc cca gat gag Leu Asp Leu Ser Tyr Asn Arg Leu Asp Arg Asn Pro Ser Pro Asp Glu 300 305 310			1202
ctg ccc caa gtg ggg aac ctg tca ctt aaa gga aat ccc ttt ttg gac Leu Pro Gln Val Gly Asn Leu Ser Leu Lys Gly Asn Pro Phe Leu Asp 315 320 325			1250
tct gaa tcc cac tcg gag aag ttt aac tct ggc gta gtc acc gcc gga Ser Glu Ser His Ser Glu Lys Phe Asn Ser Gly Val Val Thr Ala Gly 330 335 340			1298
gct cca tca tcc caa gca gtg gcc ttg tca gga act ctg gct ttg ctc Ala Pro Ser Ser Gln Ala Val Ala Leu Ser Gly Thr Leu Ala Leu Leu 345 350 355			1346
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ttgttgttgg tttgtttgtt ttgagacag tctggctatg tatccttggc			1697
tggcctcaaa ctcataaaga tcaagatcgg cctgcctcta cctccaaatg ctctggtaa			1757
aggatgtgc ctccatgccc agttgaagtc atcctgaacc acgagtccag gccactcact			1817

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Asn Phe Ser Asp Pro Lys Pro Asp Trp Ser Ser Ala Phe Asn Cys Leu  
35 40 45

Gly Ala Ala Asp Val Glu Leu Tyr Gly Gly Gly Arg Ser Leu Glu Tyr  
50 55 60

Leu Leu Lys Arg Val Asp Thr Glu Ala Asp Leu Gly Gln Phe Thr Asp  
65 70 75 80

Ile Ile Lys Ser Leu Ser Leu Lys Arg Leu Thr Val Arg Ala Ala Arg  
85 90 95

Ile Pro Ser Arg Ile Leu Phe Gly Ala Leu Arg Val Leu Gly Ile Ser  
100 105 110

Gly Leu Gln Glu Leu Thr Leu Glu Asn Leu Glu Val Thr Gly Thr Ala  
115 120 125

Pro Pro Pro Leu Leu Glu Ala Thr Gly Pro Asp Leu Asn Ile Leu Asn  
130 135 140

Leu Arg Asn Val Ser Trp Ala Thr Arg Asp Ala Trp Leu Ala Glu Leu  
145 150 155 160

Gln Gln Trp Leu Lys Pro Gly Leu Lys Val Leu Ser Ile Ala Gln Ala  
165 170 175

His Ser Leu Asn Phe Ser Cys Glu Gln Val Arg Val Phe Pro Ala Leu  
180 185 190

Ser Thr Leu Asp Leu Ser Asp Asn Pro Glu Leu Gly Glu Arg Gly Leu  
195 200 205

Ile Ser Ala Leu Cys Pro Leu Lys Phe Pro Thr Leu Gln Val Leu Ala  
210 215 220

Leu Arg Asn Ala Gly Met Glu Thr Pro Ser Gly Val Cys Ser Ala Leu  
225 230 235 240

Ala Ala Ala Arg Val Gln Leu Gln Gly Leu Asp Leu Ser His Asn Ser  
245 250 255

Leu Arg Asp Ala Ala Gly Ala Pro Ser Cys Asp Trp Pro Ser Gln Leu  
260 265 270

Asn Ser Leu Asn Leu Ser Phe Thr Gly Leu Lys Gln Val Pro Lys Gly  
275 280 285

Leu Pro Ala Lys Leu Ser Val Leu Asp Leu Ser Tyr Asn Arg Leu Asp  
290 295 300

Arg Asn Pro Ser Pro Asp Glu Leu Pro Gln Val Gly Asn Leu Ser Leu  
305 310 315 320

Lys Gly Asn Pro Phe Leu Asp Ser Glu Ser His Ser Glu Lys Phe Asn  
325 330 335

Ser Gly Val Val Thr Ala Gly Ala Pro Ser Ser Gln Ala Val Ala Leu  
340 345 350

Ser Gly Thr Leu Ala Leu Leu Gly Asp Arg Leu Phe Val  
355 360 365

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Arg Tyr Ala Gly Val Phe His Val Glu Lys Asn Gly Arg Tyr Ser Ile  
35 40 45

Ser Arg Thr Glu Ala Ala Asp Leu Cys Gln Ala Phe Asn Ser Thr Leu  
50 55 60

Pro Thr Met Asp Gln Met Lys Leu Ala Leu Ser Lys Gly Phe Glu Thr  
65 70 75 80

Cys Arg Tyr Gly Phe Ile Glu Gly Asn Val Val Ile Pro Arg Ile His

85

90

95

Pro Asn Ala Ile Cys Ala Ala Asn His Thr Gly Val Tyr Ile Leu Val  
 100 105 110

Thr Ser Asn Thr Ser His Tyr Asp Thr Tyr Cys Phe Asn Ala Ser Ala  
 115 120 125

Pro Pro Glu Glu Asp Cys Thr Ser Val Thr Asp Leu Pro Asn Ser Phe  
 130 135 140

Asp Gly Pro Val Thr Ile Thr Ile Val Asn Arg Asp Gly Thr Arg Tyr  
 145 150 155 160

Ser Lys Lys Gly Glu Tyr Arg Thr His Gln Glu Asp Ile Asp Ala Ser  
 165 170 175

Asn Ile Ile Asp Asp Asp Val Ser Ser Gly Ser Thr Ile Glu Lys Ser  
 180 185 190

Thr Pro Glu Ser Tyr Ile Leu His Thr Tyr Leu Pro Thr Glu Gln Pro  
 195 200 205

Thr Gly Asp Gln Asp Asp Ser Phe Phe Ile Arg Ser Thr Leu Ala Thr  
 210 215 220

Arg Asp Arg Asp Ser Ser Lys Asp Ser Arg Gly Ser Ser Arg Thr Val  
 225 230 235 240

Thr His Gly Ser Glu Leu Ala Gly His Ser Ser Ala Asn Gln Asp Ser  
 245 250 255

Gly Val Thr Thr Ser Gly Pro Met Arg Arg Pro Gln Ile Pro Glu  
 260 265 270

Trp Leu Ile Ile Leu Ala Ser Leu Leu Ala Leu Ile Leu Ala  
 275 280 285

Val Cys Ile Ala Val Asn Ser Arg Arg Arg Cys Gly Gln Lys Lys  
 290 295 300

Leu Val Ile Asn Gly Gly Asn Gly Thr Val Glu Asp Arg Lys Pro Ser  
 305 310 315 320

Glu Leu Asn Gly Glu Ala Ser Lys Ser Gln Glu Met Val His Leu Val

325	330	335
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20	25	30
Leu Trp Ile Tyr His Thr Lys Ile Pro Glu Val Gly Glu Asn Arg Trp		
35	40	45
Gln Lys Asp Trp Trp Phe Pro Ser Trp Phe Lys Asn Gly Thr His Ser		
50	55	60
Tyr Gln Glu Asp Asn Val Glu Gly Arg Arg Glu Lys Gly Arg Asn Gly		
65	70	75
80		
Asp Arg Ile Glu Glu Pro Gln Leu Trp Asp Trp Phe Asn Pro Lys Asn		
85	90	95
Arg Pro Asp Val Leu Thr Val Thr Pro Trp Lys Ala Pro Ile Val Trp		
100	105	110
Glu Gly Thr Tyr Asp Thr Ala Leu Leu Glu Lys Tyr Tyr Ala Thr Gln		
115	120	125
Lys Leu Thr Val Gly Leu Thr Val Phe Ala Val Gly Lys Tyr Ile Glu		
130	135	140
His Tyr Leu Glu Asp Phe Leu Glu Ser Ala Asp Met Tyr Phe Met Val		
145	150	155
160		
Gly His Arg Val Ile Phe Tyr Val Met Ile Asp Asp Thr Ser Arg Met		
165	170	175
Pro Val Val His Leu Asn Pro Leu His Ser Leu Gln Val Phe Glu Ile		
180	185	190

Arg Ser Glu Lys Arg Trp Gln Asp Ile Ser Met Met Arg Met Lys Thr  
 195 200 205

Ile Gly Glu His Ile Leu Ala His Ile Gln His Glu Val Asp Phe Leu  
 210 215 220

Phe Cys Met Asp Val Asp Gln Val Phe Gln Asp Asn Phe Gly Val Glu  
 225 230 235 240

Thr Leu Gly Gln Leu Val Ala Gln Leu Gln Ala Trp Trp Tyr Lys Ala  
 245 250 255

Ser Pro Glu Lys Phe Thr Tyr Glu Arg Arg Glu Leu Ser Ala Ala Tyr  
 260 265 270

Ile Pro Phe Gly Glu Gly Asp Phe Tyr Tyr His Ala Ala Ile Phe Gly  
 275 280 285

Gly Thr Pro Thr His Ile Leu Asn Leu Thr Arg Glu Cys Phe Lys Gly  
 290 295 300

Ile Leu Gln Asp Lys Lys His Asp Ile Glu Ala Gln Trp His Asp Glu  
 305 310 315 320

Ser His Leu Asn Lys Tyr Phe Leu Phe Asn Lys Pro Thr Lys Ile Leu  
 325 330 335

Ser Pro Glu Tyr Cys Trp Asp Tyr Gln Ile Gly Leu Pro Ser Asp Ile  
 340 345 350

Lys Ser Val Lys Val Ala Trp Gln Thr Lys Glu Tyr Asn Leu Val Arg  
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Asn Asn Val  
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 1 5 10 15

act cga ctc tcc atc cta gag gac ctg aac aa  
 Thr Arg Leu Ser Ile Leu Glu Asp Leu Asn  
 20 25

47

79

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Ser Leu Thr Gly Glu Gly Thr Gln Pro Gln His Phe Gly Asp Gly Thr  
1 5 10 15

Arg Leu Ser Ile Leu Glu Asp Leu Asn  
20 25

<210> 77 <211> 1197 <212> DNA <213> Streptococcus pyogenes <220>  
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150	155	160	
ggt aaa gag acc ttt aat caa tcg gcg ctt ttt gtc gac tat aag ggg Gly Lys Glu Thr Phe Asn Gln Ser Ala Leu Phe Val Asp Tyr Lys Gly 165	170	175	645
aca aca aat gcc gtt aat att gcg atg cgt cac gca acc acc ccc aat Thr Thr Asn Ala Val Asn Ile Ala Met Arg His Ala Thr Thr Pro Asn 185	190	195	693
ttt tca tcg gcg ctt aat att act agc ggc aat gaa aat ggt agt gca Phe Ser Ser Ala Leu Asn Ile Thr Ser Gly Asn Glu Asn Gly Ser Ala 200	205	210	741
atg cag cta cga ggg tca gaa aaa gcg cta gga acg cta aaa att act Met Gln Leu Arg Gly Ser Glu Lys Ala Leu Gly Thr Leu Lys Ile Thr 215	220	225	789
cat gag aac cca agt att gga gcg gat tat gat aaa aat gcg gca cgt His Glu Asn Pro Ser Ile Gly Ala Asp Tyr Asp Lys Asn Ala Ala Arg 230	235	240	837
tat cca ttg ata ttg tca aaa aga caa aac ggt gca gga aca gcc gct Tyr Pro Leu Ile Leu Ser Lys Arg Gln Asn Gly Ala Gly Thr Ala Ala 245	250	255	885
cag gga atc tac att aac tca acc tca ggc acg aca ggg aag ttg ctt Gln Gly Ile Tyr Ile Asn Ser Thr Ser Gly Thr Thr Gly Lys Leu Leu 265	270	275	933
agg att aga aac ctt agt gat gat aag ttc tac gtc aag tct gac ggt Arg Ile Arg Asn Leu Ser Asp Asp Lys Phe Tyr Val Lys Ser Asp Gly 280	285	290	981
ggt ttt tat gcc aag gaa act tcg cag att gat ggc aac ctg aaa ctc Gly Phe Tyr Ala Lys Glu Thr Ser Gln Ile Asp Gly Asn Leu Lys Leu 295	300	305	1029
aag gac ccc aca gcg aat gat cat gcg gca acc aaa gct tat gta gat Lys Asp Pro Thr Ala Asn Asp His Ala Ala Thr Lys Ala Tyr Val Asp 310	315	320	1077
aaa gca att tct gag tta aaa aaa ctc ata cta aaa aaa tag Lys Ala Ile Ser Glu Leu Lys Lys Leu Ile Leu Lys Lys 325	330	335	1119
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Phe Glu Thr Asp Thr Gly Phe Ala Arg Ala Gly Asp Gly His Asn Arg  
35 40 45

Phe Ser Asp Leu Gly Tyr Ile Ser Pro Leu Asp Tyr Asn Leu Leu Thr  
50 55 60

Asn Lys Pro Asn Ile Asp Gly Leu Ala Thr Lys Val Glu Thr Ala Gln  
65 70 75 80

Lys Leu Gln Gln Lys Ala Asp Lys Glu Thr Val Tyr Thr Lys Ala Glu  
85 90 95

Ser Lys Gln Glu Leu Asp Lys Lys Leu Asn Leu Lys Gly Gly Val Met  
100 105 110

Thr Gly Gln Leu Lys Phe Lys Pro Ala Ala Thr Val Ala Tyr Ser Ser  
115 120 125

Ser Thr Gly Gly Ala Val Asn Ile Asp Leu Ser Ser Thr Arg Gly Ala  
130 135 140

Gly Val Val Val Tyr Ser Asp Asn Asp Thr Ser Asp Gly Pro Leu Met  
145 150 155 160

Ser Leu Arg Thr Gly Lys Glu Thr Phe Asn Gln Ser Ala Leu Phe Val  
165 170 175

Asp Tyr Lys Gly Thr Thr Asn Ala Val Asn Ile Ala Met Arg His Ala  
180 185 190

Thr Thr Pro Asn Phe Ser Ser Ala Leu Asn Ile Thr Ser Gly Asn Glu  
195 200 205

Asn Gly Ser Ala Met Gln Leu Arg Gly Ser Glu Lys Ala Leu Gly Thr  
210 215 220

Leu Lys Ile Thr His Glu Asn Pro Ser Ile Gly Ala Asp Tyr Asp Lys  
225 230 235 240

Asn Ala Ala Arg Tyr Pro Leu Ile Leu Ser Lys Arg Gln Asn Gly Ala  
245 250 255

Gly Thr Ala Ala Gln Gly Ile Tyr Ile Asn Ser Thr Ser Gly Thr Thr  
260 265 270

Gly Lys Leu Leu Arg Ile Arg Asn Leu Ser Asp Asp Lys Phe Tyr Val  
 275 280 285

Lys Ser Asp Gly Gly Phe Tyr Ala Lys Glu Thr Ser Gln Ile Asp Gly  
290 295 300

Asn Leu Lys Leu Lys Asp Pro Thr Ala Asn Asp His Ala Ala Thr Lys  
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Ala Tyr Val Asp Lys Ala Ile Ser Glu Leu Lys Lys Leu Ile Leu Lys  
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Lys

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gaacatcaat	tgcttgaaaa	tatcgataat	tagttaatct	aaaacaaaaaa	cccccacgct	180
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				Met	Lys Ile Lys	
				1		
tca tat aaa aag gaa aat ggt gaa act gct tat aaa ttt ctt ttg tat						345
Ser Tyr Lys Lys Glu Asn Gly Glu Thr Ala Tyr Lys Phe Leu Leu Tyr						
5	10	15	20			
gcc ggt tat gtt aat gga aag aga aaa tat att agg cga gaa ggt ttc						393
Ala Gly Tyr Val Asn Gly Lys Arg Lys Tyr Ile Arg Arg Glu Gly Phe						
25	30	35				
aaa act aag cag gct gca agg gaa acc tta att agt tta caa gct gaa						441
Lys Thr Lys Gln Ala Ala Arg Glu Thr Leu Ile Ser Leu Gln Ala Glu						
40	45	50				
ctt gat aaa cct aaa tca agt atg aca ttt gga gca ttg aca gat caa						489
Leu Asp Lys Pro Lys Ser Ser Met Thr Phe Gly Ala Leu Thr Asp Gln						
55	60	65				
tgg cta aag gaa tat gaa aaa acc gtt cag ggc agt acc tac tta aaa						537
Trp Leu Lys Glu Tyr Glu Lys Thr Val Gln Gly Ser Thr Tyr Leu Lys						
70	75	80				
aca gaa aga aat att aat aaa cat att ttg cca aaa ctt gat aaa gtg						585
Thr Glu Arg Asn Ile Asn Lys His Ile Leu Pro Lys Leu Asp Lys Val						
85	90	95	100			

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tgg tgc aac gat tta aaa tat gga gga aaa att ctt ggg ctt gtt agg Trp Cys Asn Asp Leu Lys Tyr Gly Gly Lys Ile Leu Gly Leu Val Arg 120 125 130	681
aat atc tta aat cta gct gtt aga tac gga tat atc aat aac aat cca Asn Ile Leu Asn Leu Ala Val Arg Tyr Gly Tyr Ile Asn Asn Asn Pro 135 140 145	729
gct ttg cca att aca cct cca aaa ata aaa agg aaa aga aaa atg aat Ala Leu Pro Ile Thr Pro Pro Lys Ile Lys Arg Lys Arg Lys Met Asn 150 155 160	777
aat aat ttt tat aca ctt gat caa ctt aaa caa ttc ctt gaa cta gtt Asn Asn Phe Tyr Thr Leu Asp Gln Leu Lys Gln Phe Leu Glu Leu Val 165 170 175 180	825
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ttt act gga ata cga aaa ggg gag ctt ctg gca cta act tgg gat gat Phe Thr Gly Ile Arg Lys Gly Glu Leu Leu Ala Leu Thr Trp Asp Asp 200 205 210	921
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gtt gga cta gaa ata gat gtt acg aag aca aaa tca agc gat aga tta Val Gly Leu Glu Ile Asp Val Thr Lys Thr Lys Ser Ser Asp Arg Leu 230 235 240	1017
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Glu Leu His Glu Thr Phe Pro Thr Ser Thr Leu Met Phe Gln Ser Lys  
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His Thr His Ala Ser Leu Leu Phe Glu Ser Gly Leu Ser Leu Lys Gln  
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Val Gln His Arg Leu Gly His Gly Asp Leu Gln Thr Thr Met Asn Val  
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Ile Ser Val Phe Tyr Arg Thr Ser Leu Leu Gly Ile Val Leu Tyr Phe			
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Glu Ile Asp Pro Asn His Trp Ser Ile Val Leu Leu Phe Ser Thr Phe			
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gaa gaa aca aca caa cca gtt gca caa cca tta gtt aaa att cca cag Glu Glu Thr Thr Gln Pro Val Ala Gln Pro Leu Val Lys Ile Pro Gln 345 350 355 360	1228
ggc aca att aca ggt gaa att gtg aaa ggt ccg gaa tat cca acg atg Gly Thr Ile Thr Gly Glu Ile Val Lys Gly Pro Glu Tyr Pro Thr Met 365 370 375	1276
gaa aat aaa acg tta caa ggt gaa atc gtt caa ggt cca gat ttc cca Glu Asn Lys Thr Leu Gln Gly Glu Ile Val Gln Gly Pro Asp Phe Pro 380 385 390	1324
aca atg gaa caa agc ggt cca tct tta agc gac aat tat act caa ccg Thr Met Glu Gln Ser Gly Pro Ser Leu Ser Asp Asn Tyr Thr Gln Pro 395 400 405	1372
acg aca ccg aac cct att tta gaa ggt ctt gaa ggt agc tca tct aaa Thr Thr Pro Asn Pro Ile Leu Glu Gly Leu Glu Gly Ser Ser Ser Lys 410 415 420	1420
ctt gaa ata aaa cca caa ggt act gaa tca acg ttg aaa ggt att caa Leu Glu Ile Lys Pro Gln Gly Thr Glu Ser Thr Leu Lys Gly Ile Gln 425 430 435 440	1468
gga gaa tca agt gat att gaa gtt aaa cct caa gca act gaa aca aca Gly Glu Ser Ser Asp Ile Glu Val Lys Pro Gln Ala Thr Glu Thr Thr 445 450 455	1516
gaa gct tct caa tat ggt ccg aga ccg caa ttt aac aaa aca cct aag Glu Ala Ser Gln Tyr Gly Pro Arg Pro Gln Phe Asn Lys Thr Pro Lys 460 465 470	1564
tat gtg aaa tat aga gat gct ggt aca ggt att cgt gaa tac aac gat Tyr Val Lys Tyr Arg Asp Ala Gly Thr Gly Ile Arg Glu Tyr Asn Asp 475 480 485	1612
gga aca ttt gga tat gaa gcg aga cca aga ttc aac aag cca tca gaa Gly Thr Phe Gly Tyr Glu Ala Arg Pro Arg Phe Asn Lys Pro Ser Glu 490 495 500	1660

aca aac gca tac aac gta acg aca aat caa gat ggc aca gta tca tac Thr Asn Ala Tyr Asn Val Thr Thr Asn Gln Asp Gly Thr Val Ser Tyr 505 510 515 520	1708
ggc gcc cgc cca aca caa aac aag gca tca gaa aca aac gca tat aac Gly Ala Arg Pro Thr Gln Asn Lys Ala Ser Glu Thr Asn Ala Tyr Asn 525 530 535	1756
gta aca aca cat gca aac ggc caa gta tca tac gga gct cgc cca aca Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr 540 545 550	1804
caa aag aag cca agc gaa aca aat gca tat aac gta aca aca cat gca Gln Lys Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His Ala 555 560 565	1852
aac ggc caa gta tca tat ggc gcc cgc ccg aca tac aac aag cca agc Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Tyr Asn Lys Pro Ser 570 575 580	1900
gaa aca aat gca tat aac gta aca aca cac gga aat ggc caa gta tca Glu Thr Asn Ala Tyr Asn Val Thr Thr His Gly Asn Gly Gln Val Ser 585 590 595 600	1948
tat gga gct cgt ccg aca tac aag aaa cca agt aaa aca aat gca tat Tyr Gly Ala Arg Pro Thr Tyr Lys Lys Pro Ser Lys Thr Asn Ala Tyr 605 610 615	1996
aac gta aca aca cat gca aac ggc caa gtg tca tac gga gct cgc cca Asn Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro 620 625 630	2044
aca caa aac aag cca agc gaa aca aac gca tat aac gta aca aca cat Thr Gln Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His 635 640 645	2092
gca aat ggc caa gta tca tac gga gct cgc cca aca caa aac aag cca Ala Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Gln Asn Lys Pro 650 655 660	2140
agc gaa aca aac gca tat aac gta aca aca cac gga aac ggt caa gtg Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His Gly Asn Gly Gln Val 665 670 675 680	2188
tca tac ggc gct cgt ccg aca tac aac aag cca agt aaa aca aat gca Ser Tyr Gly Ala Arg Pro Thr Tyr Asn Lys Pro Ser Lys Thr Asn Ala 685 690 695	2236
tac aat gta aca aca cat gca gat ggt act gcg aca tat ggt cct aga Tyr Asn Val Thr Thr His Ala Asp Gly Thr Ala Thr Tyr Gly Pro Arg 700 705 710	2284
gta aca aaa taa gtttataact ctatccatag acatacagtc aataacaatac Val Thr Lys 715	2336
aaaacattac gtatcttac aacagtaatc atgcattcta tgatgcttct aactgaatta	2396
aagcatcgaa caatcgaaag catatttcta aattatttat tcattatagt cttaaacata	2456

acatgaccta atataattact aacctattaa aataaaccac gcacatctat gtgatatacg	2516
acaatcacag caataataat tgctttagaa agtcgtaccg aactggaact tacaagtcta	2576
gttcgaacac actgatgtga gtggtttct ttattttaaa catgaacaat cagataagtt	2636
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attaaaaattt gacgtgtaaa tgttaaattc taaaacggaa atacccgcta tcctattaaa	2756
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tcaaccattc taacgcacat actcaaatac agcagctgca cccataccga caccaataca	2936
catcgtaacc atgcccgtaac ggctatcggg acgtctaccc atttcattaa gtaaacgcgc	2996
ggtaacatt gctcctgttag cacctaattgg atgacctaaa gcaata	3042

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Leu Phe Thr Trp Asp Asn Lys Ala Asp Ala Ile Val Thr Lys Asp Tyr		
20	25	30

Ser Lys Glu Ser Arg Val Asn Glu Asn Ser Lys Tyr Gly Thr Leu Ile		
35	40	45

Ser Asp Trp Tyr Leu Lys Gly Arg Leu Thr Ser Leu Glu Ser Gln Phe		
50	55	60

Ile Asn Ala Leu Asp Ile Leu Glu Thr Tyr His Tyr Gly Glu Lys Glu			
65	70	75	80

Tyr Lys Asp Ala Lys Asp Lys Leu Met Thr Arg Ile Leu Gly Glu Asp		
85	90	95

Gln Tyr Leu Leu Glu Arg Lys Lys Val Gln Tyr Glu Glu Tyr Lys Lys		
100	105	110

Leu Tyr Gln Lys Tyr Lys Glu Glu Asn Pro Thr Ser Lys Gly Leu Lys		
115	120	125

Leu Lys Thr Phe Asp Gln Tyr Thr Ile Glu Asp Leu Thr Met Arg Glu		
130	135	140

Tyr Asn Glu Leu Thr Glu Ser Leu Lys Ser Ala Val Lys Asp Phe Glu  
 145 150 155 160

Lys Asp Val Glu Lys Ile Glu Asn Gln His His Asp Leu Lys Pro Phe  
 165 170 175

Thr Asp Glu Met Glu Glu Lys Ala Thr Ser Arg Val Asp Asp Leu Ala  
 180 185 190

Asn Lys Ala Tyr Ser Val Tyr Phe Ala Phe Val Arg Asp Thr Gln His  
 195 200 205

Lys Thr Glu Ala Leu Glu Leu Lys Ala Lys Val Asp Leu Val Leu Gly  
 210 215 220

Asp Glu Asp Lys Pro His Arg Ile Ser Asn Glu Arg Ile Glu Lys Glu  
 225 230 235 240

Met Ile Lys Asp Leu Glu Ser Ile Ile Glu Asp Phe Phe Ile Glu Thr  
 245 250 255

Gly Leu Asn Lys Pro Gly Asn Ile Thr Ser Tyr Asp Ser Ser Lys His  
 260 265 270

His Tyr Lys Asn His Ser Glu Gly Phe Glu Ala Leu Val Lys Glu Thr  
 275 280 285

Arg Glu Ala Val Ala Asn Ala Asp Glu Ser Trp Lys Thr Lys Thr Val  
 290 295 300

Lys Lys Tyr Gly Glu Ser Glu Thr Lys Ser Pro Val Val Lys Glu Glu  
 305 310 315 320

Asn Lys Val Glu Asp Pro Gln Ser Pro Lys Phe Asp Asn Gln Gln Glu  
 325 330 335

Val Lys Thr Thr Ala Gly Lys Ala Glu Glu Thr Thr Gln Pro Val Ala  
 340 345 350

Gln Pro Leu Val Lys Ile Pro Gln Gly Thr Ile Thr Gly Glu Ile Val  
 355 360 365

Lys Gly Pro Glu Tyr Pro Thr Met Glu Asn Lys Thr Leu Gln Gly Glu  
 370 375 380

Ile Val Gln Gly Pro Asp Phe Pro Thr Met Glu Gln Ser Gly Pro Ser  
385 390 395 400

Leu Ser Asp Asn Tyr Thr Gln Pro Thr Thr Pro Asn Pro Ile Leu Glu  
405 410 415

Gly Leu Glu Gly Ser Ser Ser Lys Leu Glu Ile Lys Pro Gln Gly Thr  
420 425 430

Glu Ser Thr Leu Lys Gly Ile Gln Gly Glu Ser Ser Asp Ile Glu Val  
435 440 445

Lys Pro Gln Ala Thr Glu Thr Thr Glu Ala Ser Gln Tyr Gly Pro Arg  
450 455 460

Pro Gln Phe Asn Lys Thr Pro Lys Tyr Val Lys Tyr Arg Asp Ala Gly  
465 470 475 480

Thr Gly Ile Arg Glu Tyr Asn Asp Gly Thr Phe Gly Tyr Glu Ala Arg  
485 490 495

Pro Arg Phe Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr  
500 505 510

Asn Gln Asp Gly Thr Val Ser Tyr Gly Ala Arg Pro Thr Gln Asn Lys  
515 520 525

Ala Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His Ala Asn Gly Gln  
530 535 540

Val Ser Tyr Gly Ala Arg Pro Thr Gln Lys Lys Pro Ser Glu Thr Asn  
545 550 555 560

Ala Tyr Asn Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly Ala  
565 570 575

Arg Pro Thr Tyr Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr  
580 585 590

Thr His Gly Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Tyr Lys  
595 600 605

Lys Pro Ser Lys Thr Asn Ala Tyr Asn Val Thr Thr His Ala Asn Gly  
610 615 620

Gln Val Ser Tyr Gly Ala Arg Pro Thr Gln Asn Lys Pro Ser Glu Thr  
625 630 635 640

Asn Ala Tyr Asn Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly  
645 650 655

Ala Arg Pro Thr Gln Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val  
660 665 670

Thr Thr His Gly Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Tyr  
675 680 685

Asn Lys Pro Ser Lys Thr Asn Ala Tyr Asn Val Thr Thr His Ala Asp  
690 695 700

Gly Thr Ala Thr Tyr Gly Pro Arg Val Thr Lys  
705 710 715

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	aagcaaggct atctaataaaa agaacggctc aactgaagat gaaagaaaaaa ttttaattca	180
	tatgaatgac gcgcagcaag accatgctga acaatttatta gctcaagtga atcaattatt	240
	ggcagataaa aatcatttac atcttgaaaa tgaataatat ctcttattacg caagtgtgct	300
	gtattctaaa gtgccattgt gttttctatt ttttaataaaa acctcagcac attatgaaca	360
	actttctatt ttctatatct cttaaaaacca tttccgaaat taaacctcag cacattcaaa	420
	attccatttt attcttaaaa atattttta actcatatgt aataaaccgc tttcattata	480
	aaaaatatct atatattttta tctgtttta ttaatcgaa tagcgtgatt ttgcggtttt	540
	aagcctttta ctccctgaat aaatcttgg aaaaaatttt tattttataa gttgtaaaac	600
	ttaccttaaa atttaatttat aaatatacgat tttagtatttgc caatacataa ttcgttataat	660
	tatgtgact ttacaaatac atacaggggg tattttat ttg aaa aag aaa aac att	715
	Leu Lys Lys Lys Asn Ile	
	1 5	
	10 15 20	
	tat tca att cgt aaa cta ggt gta ggt att gca tct gta act tta ggt	763
Tyr Ser Ile Arg Lys Leu Gly Val Gly Ile Ala Ser Val Thr Leu Gly		
10 15 20		
aca tta ctt ata tct qqt ggc gta aca cct gct gca aat gct gcg caa	811	

25	30	35	
cac gat gaa gct caa caa aat gct ttt tat caa gtg tta aat atg cct His Asp Glu Ala Gln Gln Asn Ala Phe Tyr Gln Val Leu Asn Met Pro			859
40	45	50	
aac tta aac gct gat caa cgt aat ggt ttt atc caa agc ctt aaa gat Asn Leu Asn Ala Asp Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp			907
55	60	65	70
gat cca agc caa agt gct aac gtt tta ggt gaa gct caa aaa ctt aat Asp Pro Ser Gln Ser Ala Asn Val Leu Gly Glu Ala Gln Lys Leu Asn			955
75	80	85	
gac tct caa gct cca aaa gct gat gcg caa caa aat aag ttc aac aaa Asp Ser Gln Ala Pro Lys Ala Asp Ala Gln Gln Asn Lys Phe Asn Lys			1003
90	95	100	
gat caa caa agc gcc ttc tat gaa atc ttg aac atg cct aac tta aac Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn			1051
105	110	115	
gaa gag caa cgc aat ggt ttc att caa agt ctt aaa gac gat cca agc Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser			1099
120	125	130	
caa agc act aac gtt tta ggt gaa gct aaa aaa tta aac gaa tct caa Gln Ser Thr Asn Val Leu Gly Glu Ala Lys Lys Leu Asn Glu Ser Gln			1147
135	140	145	150
gca ccg aaa gct gac aac aat ttc aac aaa gaa caa caa aat gct ttc Ala Pro Lys Ala Asp Asn Asn Phe Asn Lys Glu Gln Gln Asn Ala Phe			1195
155	160	165	
tat gaa atc ttg aac atg cct aac ttg aac gaa gaa caa cgc aat ggt Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly			1243
170	175	180	
ttc atc caa agc tta aaa gat gac cca agt caa agt gct aac ctt tta Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu			1291
185	190	195	
gca gaa gct aaa aag tta aat gaa tct caa gca ccg aaa gct gat aac Ala Glu Ala Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn			1339
200	205	210	
aaa ttc aac aaa gaa caa caa aat gct ttc tat gaa atc tta cat tta Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu			1387
215	220	225	230
cct aac tta aat gaa gaa caa cgc aat ggt ttc atc caa agc tta aaa Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys			1435
235	240	245	
gat gac cca agc caa agc gct aac ctt tta gca gaa gct aaa aag cta Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala Lys Lys Leu			1483
250	255	260	
aat gat gca caa gca cca aaa gct gac aac aaa ttc aac aaa gaa caa Asn Asp Ala Gln Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln			1531

265	270	275	
caa aat gct ttc tat gaa att tta cat tta cct aac tta act gaa gaa Gln Asn Ala Phe Tyr Glu Ile Leu His Leu Pro Asn Leu Thr Glu Glu 280	285	290	1579
caa cgt aac ggc ttc atc caa agc ctt aaa gac gat cct tca gtg agc Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Val Ser 295	300	305	1627
aaa gaa att tta gca gaa gct aaa aag cta aac gat gct caa gca cca Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro 315	320	325	1675
aaa gag gaa gac aac aac aag cct ggt aaa gaa gac ggc aac aaa cct Lys Glu Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro 330	335	340	1723
ggt aaa gaa gac ggc aac aaa cct ggt aaa gaa gac aac aaa aaa cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Asn Lys Lys Pro 345	350	355	1771
ggc aaa gaa gac ggc aac aaa cct ggt aaa gaa gac aac aaa aaa cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Asn Lys Lys Pro 360	365	370	1819
ggc aaa gaa gat ggc aac aaa cct ggt aaa gaa gac ggc aac aag cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro 375	380	385	1867
ggt aaa gaa gat ggc aac aag cct ggt aaa gaa gat ggc aac aag cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro 395	400	405	1915
ggt aaa gaa gac ggc aac gga gta cat gtc gtt aaa cct ggt gat aca Gly Lys Glu Asp Gly Asn Gly Val His Val Val Lys Pro Gly Asp Thr 410	415	420	1963
gta aat gac att gca aaa gca aac ggc act act gct gac aaa att gct Val Asn Asp Ile Ala Lys Ala Asn Gly Thr Thr Ala Asp Lys Ile Ala 425	430	435	2011
gca gat aac aaa tta gct gat aaa aac atg atc aaa cct ggt caa gaa Ala Asp Asn Lys Leu Ala Asp Lys Asn Met Ile Lys Pro Gly Gln Glu 440	445	450	2059
ctt gtt gtt gat aag aag caa cca gca aac cat gca gat gct aac aaa Leu Val Val Asp Lys Lys Gln Pro Ala Asn His Ala Asp Ala Asn Lys 455	460	465	2107
gct caa gca tta cca gaa act ggt gaa gaa aat cca ttc atc ggt aca Ala Gln Ala Leu Pro Glu Thr Gly Glu Asn Pro Phe Ile Gly Thr 475	480	485	2155
act gta ttt ggt gga tta tca tta gcg tta ggt gca gcg tta tta gct Thr Val Phe Gly Gly Leu Ser Leu Ala Leu Gly Ala Ala Leu Leu Ala 490	495	500	2203
gga cgt cgt cgc gaa cta taa aaacaaacaa tacacaacga tagatatc Gly Arg Arg Arg Glu Leu			2252

505

&lt;210&gt; 88 &lt;211&gt; 508 &lt;212&gt; PRT &lt;213&gt; Staphylococcus aureus &lt;400&gt; 88

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20 25 30Ala Ala Asn Ala Ala Gln His Asp Glu Ala Gln Gln Asn Ala Phe Tyr  
35 40 45Gln Val Leu Asn Met Pro Asn Leu Asn Ala Asp Gln Arg Asn Gly Phe  
50 55 60Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Val Leu Gly  
65 70 75 80Glu Ala Gln Lys Leu Asn Asp Ser Gln Ala Pro Lys Ala Asp Ala Gln  
85 90 95Gln Asn Lys Phe Asn Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu  
100 105 110Asn Met Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser  
115 120 125Leu Lys Asp Asp Pro Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys  
130 135 140Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn Asn Phe Asn Lys  
145 150 155 160Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn  
165 170 175Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser  
180 185 190Gln Ser Ala Asn Leu Leu Ala Glu Ala Lys Lys Leu Asn Glu Ser Gln  
195 200 205Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe  
210 215 220

Tyr Glu Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly  
225 230 235 240

Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu  
245 250 255

Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala Asp Asn  
260 265 270

Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu  
275 280 285

Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys  
290 295 300

Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu  
305 310 315 320

Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Asn Lys Pro Gly Lys  
325 330 335

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
340 345 350

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
355 360 365

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
370 375 380

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys  
385 390 395 400

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Gly Val His Val  
405 410 415

Val Lys Pro Gly Asp Thr Val Asn Asp Ile Ala Lys Ala Asn Gly Thr  
420 425 430

Thr Ala Asp Lys Ile Ala Ala Asp Asn Lys Leu Ala Asp Lys Asn Met  
435 440 445

Ile Lys Pro Gly Gln Glu Leu Val Val Asp Lys Lys Gln Pro Ala Asn  
450 455 460

His Ala Asp Ala Asn Lys Ala Gln Ala Leu Pro Glu Thr Gly Glu Glu  
 465 470 475 480

Asn Pro Phe Ile Gly Thr Thr Val Phe Gly Gly Leu Ser Leu Ala Leu  
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Gly Ala Ala Leu Leu Ala Gly Arg Arg Arg Glu Leu  
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 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Lys Asp  
 20 25 30

ccg agc tcg aga gga tcc aaa gct gat gcg caa caa aat aac ttc aac 144  
 Pro Ser Ser Arg Gly Ser Lys Ala Asp Ala Gln Gln Asn Asn Phe Asn  
 35 40 45

aaa gat caa caa agc gcc ttc tat gaa atc ttg aac atg cct aac tta 192  
 Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu  
 50 55 60

aac gaa gcg caa cgc aac ggc ttc att caa agt ctt aaa gac gac cca 240  
 Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro  
 65 70 75 80

agc caa agc act aac gtt tta ggt gaa gct aaa aaa tta aac gaa tct 288  
 Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys Lys Leu Asn Glu Ser  
 85 90 95

caa gca ggg aaa cta gtt tag aaa gct tgatccggc 324  
 Gln Ala Gly Lys Leu Val Lys Ala  
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<210> 90 <211> 104 <212> PRT <213> Staphylococcus aureus <400> 90

Met Arg Gly Ser His His His His His His Gly Met Ala Ser Met Thr  
 1 5 10 15

Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Lys Asp  
 20 25 30

Pro Ser Ser Arg Gly Ser Lys Ala Asp Ala Gln Gln Asn Asn Phe Asn  
 35 40 45

Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu  
 50 55 60

Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro  
 65 70 75 80

Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys Lys Leu Asn Glu Ser  
 85 90 95

Gln Ala Gly Lys Leu Val Lys Ala  
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Thr Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu  
 1 5 10 15

Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile  
 20 25 30

Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu  
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Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala  
 50 55 60

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 Tyr Gly Lys Ile Ile Phe Val Leu Leu Ser Ala Ile Val Ser Ile  
 5 10 15

tca gca tca agt acc act ggt gtg gca atg cac act tca acc tct tct 154  
 Ser Ala Ser Ser Thr Thr Gly Val Ala Met His Thr Ser Thr Ser Ser  
 20 25 30

tca gtc aca aag agt tac atc tca tca cag aca aat gat acg cac aaa 202  
 Ser Val Thr Lys Ser Tyr Ile Ser Ser Gln Thr Asn Asp Thr His Lys  
 35 40 45

cgg gac aca tat gca gcc act cct aga gct cat gaa gtt tca gaa att 250  
 Arg Asp Thr Tyr Ala Ala Thr Pro Arg Ala His Glu Val Ser Glu Ile  
 50 55 60 65

tct gtt aga act gtt tac cct cca gaa gag gaa acc gga gaa agg gta Ser Val Arg Thr Val Tyr Pro Pro Glu Glu Glu Thr Gly Glu Arg Val 70 75 80	298
caa ctt gcc cat cat ttc tct gaa cca gag ata aca ctc att att ttt Gln Leu Ala His His Phe Ser Glu Pro Glu Ile Thr Leu Ile Ile Phe 85 90 95	346
ggg gtg atg gct ggt gtt att gga acg atc ctc tta att tct tac ggt Gly Val Met Ala Gly Val Ile Gly Thr Ile Leu Leu Ile Ser Tyr Gly 100 105 110	394
att cgc cga ctg ata aag aaa agc cca tct gat gta aaa cct ctc ccc Ile Arg Arg Leu Ile Lys Lys Ser Pro Ser Asp Val Lys Pro Leu Pro 115 120 125	442
tca cct gac aca gac gtg cct tta agt tct gtt gaa ata gaa aat cca Ser Pro Asp Thr Asp Val Pro Leu Ser Ser Val Glu Ile Glu Asn Pro 130 135 140 145	490
gag aca agt gat caa tga gaatctgttc accaaaaccaa atgtggaaag Glu Thr Ser Asp Gln 150	538
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Ser Ser Val Thr Lys Ser Tyr Ile Ser Ser Gln Thr Asn Asp Thr His			
35	40	45	

Lys Arg Asp Thr Tyr Ala Ala Thr Pro Arg Ala His Glu Val Ser Glu			
50	55	60	

Ile Ser Val Arg Thr Val Tyr Pro Pro Glu Glu Glu Thr Gly Glu Arg			
65	70	75	80

Val Gln Leu Ala His His Phe Ser Glu Pro Glu Ile Thr Leu Ile Ile			
85	90	95	

Phe Gly Val Met Ala Gly Val Ile Gly Thr Ile Leu Leu Ile Ser Tyr  
 100 105 110

Gly Ile Arg Arg Leu Ile Lys Lys Ser Pro Ser Asp Val Lys Pro Leu  
 115 120 125

Pro Ser Pro Asp Thr Asp Val Pro Leu Ser Ser Val Glu Ile Glu Asn  
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Pro Glu Thr Ser Asp Gln  
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Ser Gly Leu Trp Ser Arg Trp Lys Ile Tyr Gly Thr Thr Asp Asn Leu		
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tgc tcc aga ggt tat gaa gcc atg tat acg cta cta ggc aat gcc aat		595
Cys Ser Arg Gly Tyr Glu Ala Met Tyr Thr Leu Leu Gly Asn Ala Asn		
150	155	160
gga gca acc tgt gca ttc ccg ttc aag ttt gaa aac aag tgg tac gca		643
Gly Ala Thr Cys Ala Phe Pro Phe Lys Phe Glu Asn Lys Trp Tyr Ala		
165	170	175
180		
gat tgc acg agt gct ggg cggtcg gat gga tgg ctc tgg tgc gga acc		691
Asp Cys Thr Ser Ala Gly Arg Ser Asp Gly Trp Leu Trp Cys Gly Thr		
185	190	195
act act gac tat gac aca gac aag cta ttt gga tat tgt cca ttg aaa		739
Thr Thr Asp Tyr Asp Thr Asp Lys Leu Phe Gly Tyr Cys Pro Leu Lys		
200	205	210
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Phe Glu Gly Ser Glu Ser Leu Trp Asn Lys Asp Pro Leu Thr Ser Val		
215	220	225
tcc tac cag ata aac tcc aaa tcc gct tta acg tgg cac caa gcg agg		835
Ser Tyr Gln Ile Asn Ser Lys Ser Ala Leu Thr Trp His Gln Ala Arg		
230	235	240
aaa agc tgc caa caa cag aac gct gag ctc ctg agc atc aca gag ata		883
Lys Ser Cys Gln Gln Asn Ala Glu Leu Leu Ser Ile Thr Glu Ile		
245	250	255
260		
cat gag caa aca tac ctg aca gga tta acc agt tcc ttg acc tca gga		931
His Glu Gln Thr Tyr Leu Thr Gly Leu Thr Ser Ser Leu Thr Ser Gly		
265	270	275
ctc tgg att gga ctt aac agt ctg agc ttc aac agc ggt tgg cag tgg		979
Leu Trp Ile Gly Leu Asn Ser Leu Ser Phe Asn Ser Gly Trp Gln Trp		
280	285	290
agt gac cgc agt cct ttc cga tat ttg aac tgg tta cca gga agt cca		1027
Ser Asp Arg Ser Pro Phe Arg Tyr Leu Asn Trp Leu Pro Gly Ser Pro		
295	300	305
tca gct gaa cct gga aaa agc tgt gtg tca cta aat cct gga aaa aat		1075
Ser Ala Glu Pro Gly Lys Ser Cys Val Ser Leu Asn Pro Gly Lys Asn		
310	315	320
gct aaa tgg gaa aat ctg gaa tgt gtt cag aaa ctg ggc tat att tgc		1123
Ala Lys Trp Glu Asn Leu Glu Cys Val Gln Lys Leu Gly Tyr Ile Cys		
325	330	335
340		
aaa aag ggc aac acc act tta aat tct ttt gtt att ccc tca gaa agt		1171
Lys Lys Gly Asn Thr Thr Leu Asn Ser Phe Val Ile Pro Ser Glu Ser		
345	350	355
gat gtg cct act cac tgt cct agt cag tgg tgg ccg tat gcc ggt cac		1219
Asp Val Pro Thr His Cys Pro Ser Gln Trp Trp Pro Tyr Ala Gly His		
360	365	370
tgt tac aag att cac aga gat gag aaa aaa atc cag agg gat gct ctg		1267

Cys Tyr Lys Ile His Arg Asp Glu Lys Ile Gln Arg Asp Ala Leu			
375	380	385	
acc acc tgc agg aag gaa ggc ggt gac ctc aca agt atc cac acc atc		1315	
Thr Thr Cys Arg Lys Glu Gly Gly Asp Leu Thr Ser Ile His Thr Ile			
390	395	400	
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Glu Glu Leu Asp Phe Ile Ile Ser Gln Leu Gly Tyr Glu Pro Asn Asp			
405	410	415	420
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Glu Leu Trp Ile Gly Leu Asn Asp Ile Lys Ile Gln Met Tyr Phe Glu			
425	430	435	
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Trp Ser Asp Gly Thr Pro Val Thr Phe Thr Lys Trp Leu Arg Gly Glu			
440	445	450	
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Pro Ser His Glu Asn Asn Arg Gln Glu Asp Cys Val Val Met Lys Gly			
455	460	465	
aag gat ggg tac tgg gca gat cgg ggc tgt gag tgg cct ctt ggc tac		1555	
Lys Asp Gly Tyr Trp Ala Asp Arg Gly Cys Glu Trp Pro Leu Gly Tyr			
470	475	480	
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Ile Cys Lys Met Lys Ser Arg Ser Gln Gly Pro Glu Ile Val Glu Val			
485	490	495	500
gaa aaa ggc tgc agg aaa ggc tgg aaa aaa cat cac ttt tac tgc tat		1651	
Glu Lys Gly Cys Arg Lys Gly Trp Lys Lys His His Phe Tyr Cys Tyr			
505	510	515	
atg att gga cat acg ctt tca aca ttt gca gaa gca aac caa acc tgt		1699	
Met Ile Gly His Thr Leu Ser Thr Phe Ala Glu Ala Asn Gln Thr Cys			
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Asn Asn Glu Asn Ala Tyr Leu Thr Thr Ile Glu Asp Arg Tyr Glu Gln			
535	540	545	
gcc ttc ctg act agt ttc gtt ggc tta agg cct gaa aaa tat ttc tgg		1795	
Ala Phe Leu Thr Ser Phe Val Gly Leu Arg Pro Glu Lys Tyr Phe Trp			
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Thr Gly Leu Ser Asp Ile Gln Thr Lys Gly Thr Phe Gln Trp Thr Ile			
565	570	575	580
gag gaa gag gtt cgg ttc acc cac tgg aat tca gat atg cca ggg cga		1891	
Glu Glu Glu Val Arg Phe Thr His Trp Asn Ser Asp Met Pro Gly Arg			
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Lys Pro Gly Cys Val Ala Met Arg Thr Gly Ile Ala Gly Gly Leu Trp			
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Asp Val Leu Lys Cys Asp Glu Lys Ala Lys Phe Val Cys Lys His Trp 615 620 625	
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cga gat ttt tgt cga gct ctg ggt gga gac tta gct agc atc aat aac Arg Asp Phe Cys Arg Ala Leu Gly Gly Asp Leu Ala Ser Ile Asn Asn 680 685 690	2179
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Arg Asn Asp Ala Gln Ser Ala Tyr Phe Ile Gly Leu Leu Ile Ser Leu			
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Asp Lys Lys Phe Ala Trp Met Asp Gly Ser Lys Val Asp Tyr Val Ser			
870	875	880	
tgg gcc aca ggt gaa ccc aat ttt gca aat gaa gat gaa aac tgt gtc			2803
Trp Ala Thr Gly Glu Pro Asn Phe Ala Asn Glu Asp Glu Asn Cys Val			
885	890	895	900
acc atg tat tca aat tca ggg ttt tgg aat gac att aac tgt ggc tat			2851
Thr Met Tyr Ser Asn Ser Gly Phe Trp Asn Asp Ile Asn Cys Gly Tyr			
905	910	915	
cca aac gcc ttc att tgc cag cga cat aac agt agt atc aat gct acc			2899
Pro Asn Ala Phe Ile Cys Gln Arg His Asn Ser Ser Ile Asn Ala Thr			
920	925	930	
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Thr Val Met Pro Thr Met Pro Ser Val Pro Ser Gly Cys Lys Glu Gly			
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Trp Asn Phe Tyr Ser Asn Lys Cys Phe Lys Ile Phe Gly Phe Met Glu			
950	955	960	
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Glu Glu Arg Lys Asn Trp Gln Glu Ala Arg Lys Ala Cys Ile Gly Phe			
965	970	975	980
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Gly Gly Asn Leu Val Ser Ile Gln Asn Glu Lys Glu Gln Ala Phe Leu			
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Thr Tyr His Met Lys Asp Ser Thr Phe Ser Ala Trp Thr Gly Leu			
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Asn Asp Val Asn Ser Glu His Thr Phe Leu Trp Thr Asp Gly Arg			
1015	1020	1025	
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Gly Val His Tyr Thr Asn Trp Gly Lys Gly Tyr Pro Gly Gly Arg			
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Arg Ser Ser Leu Ser Tyr Glu Asp Ala Asp Cys Val Val Ile Ile			
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Asp Ser Lys Arg Gly Tyr Ile Cys Gln Thr Arg Ser Asp Pro Ser			
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Leu Thr Asn Pro	Pro Ala Thr Ile Gln	Thr Asp Gly Phe Val	Lys	
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Tyr Gly Lys Ser	Ser Tyr Ser Leu Met	Arg Gln Lys Phe Gln	Trp	
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His Glu Ala Glu	Thr Tyr Cys Lys Leu	His Asn Ser Leu Ile	Ala	
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Ser Ile Leu Asp	Pro Tyr Ser Asn Ala	Phe Ala Trp Leu Gln	Met	
1135	1140	1145		
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Glu Thr Ser Asn	Glu Arg Val Trp Ile	Ala Leu Asn Ser Asn	Leu	
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Thr Asp Asn Gln	Tyr Thr Trp Thr Asp	Lys Trp Arg Val Arg	Tyr	
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act aac tgg gct	gct gat gag ccc aaa	ttg aaa tca gca tgt	gtt	3676
Thr Asn Trp Ala	Ala Asp Glu Pro Lys	Leu Lys Ser Ala Cys	Val	
1180	1185	1190		
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Tyr Leu Asp Leu	Asp Gly Tyr Trp Lys	Thr Ala His Cys Asn	Glu	
1195	1200	1205		
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Ser Phe Tyr Phe	Leu Cys Lys Arg Ser	Asp Glu Ile Pro Ala	Thr	
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Glu Pro Pro Gln	Leu Pro Gly Arg Cys	Pro Glu Ser Asp His	Thr	
1225	1230	1235		
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Ala Trp Ile Pro	Phe His Gly His Cys	Tyr Tyr Ile Glu Ser	Ser	
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Tyr Thr Arg Asn	Trp Gly Gln Ala Ser	Leu Glu Cys Leu Arg	Met	
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Gly Ser Ser Leu	Val Ser Ile Glu Ser	Ala Ala Glu Ser Ser	Phe	
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Leu Ser Tyr Arg	Val Glu Pro Leu Lys	Ser Lys Thr Asn Phe	Trp	
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Ile Gly Leu Phe	Arg Asn Val Glu Gly	Thr Trp Leu Trp Ile	Asn	
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Gly Glu Arg Asn	Asp Cys Val Ala Leu	His Ala Ser Ser Gly	Phe	
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Trp Ser Asn Ile	His Cys Ser Ser Tyr	Lys Gly Tyr Ile Cys	Lys	
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Arg Pro Lys Ile	Ile Asp Ala Lys Pro	Thr His Glu Leu Leu	Thr	
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Thr Lys Ala Asp	Thr Arg Lys Met Asp	Pro Ser Lys Pro Ser	Ser	
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Asn Val Ala Gly	Val Val Ile Ile Val	Ile Leu Leu Ile Leu	Thr	
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Gly Ala Gly Leu	Ala Ala Tyr Phe Phe	Tyr Lys Lys Arg Arg	Val	
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His Leu Pro Gln	Glu Gly Ala Phe Glu	Asn Thr Leu Tyr Phe	Asn	
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Ser Gln Ser Ser	Pro Gly Thr Ser Asp	Met Lys Asp Leu Val	Gly	
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Asn Ile Glu Gln	Asn Glu His Ser Val	Ile		
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ctaattgaag aaataattgc	ttgtttcta gcctggcaag	atatttcat aaaagaggga		4664
taacaatgct gattactacc	ttttaaaata ttttagataa	atgcacagca ccacagcacc		4724
acatctaagc attagtgtatg	ggtagctgat gtcagctca	tgtggatttt aagcactcta		4784
gaaacaatga agttcttgg	catattttaa ggagctccca	aatgtgtta cctattaaat		4844
tgttaactcag caagtagaa	accatttcaa aagtcaggt	caaatttctt caagtggcat		4904
aaaaatgtag tcagtttct	cttttaccag ttttatttc	cactccaatt atttagaact		4964
ttatattgtac atgtgcagaa	gaataaggca gctgagaatc	ttgtttcccc caagagagtt		5024
ttacaggctg agtgttgcaa	atgtgttctt tgcctgtta	tatgtatatc aggaatacaa		5084
ggatgtgaaa taaaaactgt	aatttgcata actggatgt	cttagataat gtgaaataaa		5144

cattaaagac aaggcttatt ttataaaaaaaa aaaaaaaaaa a 5185

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 20 25 30

Lys Arg Cys Val Asp Ala Val Ser Pro Ser Ala Val Gln Thr Ala Ala  
 35 40 45

Cys Asn Gln Asp Ala Glu Ser Gln Lys Phe Arg Trp Val Ser Glu Ser  
 50 55 60

Gln Ile Met Ser Val Ala Phe Lys Leu Cys Leu Gly Val Pro Ser Lys  
 65 70 75 80

Thr Asp Trp Val Ala Ile Thr Leu Tyr Ala Cys Asp Ser Lys Ser Glu  
 85 90 95

Phe Gln Lys Trp Glu Cys Lys Asn Asp Thr Leu Leu Gly Ile Lys Gly  
 100 105 110

Glu Asp Leu Phe Phe Asn Tyr Gly Asn Arg Gln Glu Lys Asn Ile Met  
 115 120 125

Leu Tyr Lys Gly Ser Gly Leu Trp Ser Arg Trp Lys Ile Tyr Gly Thr  
 130 135 140

Thr Asp Asn Leu Cys Ser Arg Gly Tyr Glu Ala Met Tyr Thr Leu Leu  
 145 150 155 160

Gly Asn Ala Asn Gly Ala Thr Cys Ala Phe Pro Phe Lys Phe Glu Asn  
 165 170 175

Lys Trp Tyr Ala Asp Cys Thr Ser Ala Gly Arg Ser Asp Gly Trp Leu  
 180 185 190

Trp Cys Gly Thr Thr Asp Tyr Asp Thr Asp Lys Leu Phe Gly Tyr  
 195 200 205

Cys Pro Leu Lys Phe Glu Gly Ser Glu Ser Leu Trp Asn Lys Asp Pro  
 210 215 220

Leu Thr Ser Val Ser Tyr Gln Ile Asn Ser Lys Ser Ala Leu Thr Trp  
225 230 235 240

His Gln Ala Arg Lys Ser Cys Gln Gln Asn Ala Glu Leu Leu Ser  
245 250 255

Ile Thr Glu Ile His Glu Gln Thr Tyr Leu Thr Gly Leu Thr Ser Ser  
260 265 270

Leu Thr Ser Gly Leu Trp Ile Gly Leu Asn Ser Leu Ser Phe Asn Ser  
275 280 285

Gly Trp Gln Trp Ser Asp Arg Ser Pro Phe Arg Tyr Leu Asn Trp Leu  
290 295 300

Pro Gly Ser Pro Ser Ala Glu Pro Gly Lys Ser Cys Val Ser Leu Asn  
305 310 315 320

Pro Gly Lys Asn Ala Lys Trp Glu Asn Leu Glu Cys Val Gln Lys Leu  
325 330 335

Gly Tyr Ile Cys Lys Lys Gly Asn Thr Thr Leu Asn Ser Phe Val Ile  
340 345 350

Pro Ser Glu Ser Asp Val Pro Thr His Cys Pro Ser Gln Trp Trp Pro  
355 360 365

Tyr Ala Gly His Cys Tyr Lys Ile His Arg Asp Glu Lys Lys Ile Gln  
370 375 380

Arg Asp Ala Leu Thr Thr Cys Arg Lys Glu Gly Gly Asp Leu Thr Ser  
385 390 395 400

Ile His Thr Ile Glu Glu Leu Asp Phe Ile Ile Ser Gln Leu Gly Tyr  
405 410 415

Glu Pro Asn Asp Glu Leu Trp Ile Gly Leu Asn Asp Ile Lys Ile Gln  
420 425 430

Met Tyr Phe Glu Trp Ser Asp Gly Thr Pro Val Thr Phe Thr Lys Trp  
435 440 445

Leu Arg Gly Glu Pro Ser His Glu Asn Asn Arg Gln Glu Asp Cys Val  
450 455 460

Val Met Lys Gly Lys Asp Gly Tyr Trp Ala Asp Arg Gly Cys Glu Trp  
465 470 475 480

Pro Leu Gly Tyr Ile Cys Lys Met Lys Ser Arg Ser Gln Gly Pro Glu  
485 490 495

Ile Val Glu Val Glu Lys Gly Cys Arg Lys Gly Trp Lys Lys His His  
500 505 510

Phe Tyr Cys Tyr Met Ile Gly His Thr Leu Ser Thr Phe Ala Glu Ala  
515 520 525

Asn Gln Thr Cys Asn Asn Glu Asn Ala Tyr Leu Thr Thr Ile Glu Asp  
530 535 540

Arg Tyr Glu Gln Ala Phe Leu Thr Ser Phe Val Gly Leu Arg Pro Glu  
545 550 555 560

Lys Tyr Phe Trp Thr Gly Leu Ser Asp Ile Gln Thr Lys Gly Thr Phe  
565 570 575

Gln Trp Thr Ile Glu Glu Val Arg Phe Thr His Trp Asn Ser Asp  
580 585 590

Met Pro Gly Arg Lys Pro Gly Cys Val Ala Met Arg Thr Gly Ile Ala  
595 600 605

Gly Gly Leu Trp Asp Val Leu Lys Cys Asp Glu Lys Ala Lys Phe Val  
610 615 620

Cys Lys His Trp Ala Glu Gly Val Thr His Pro Pro Lys Pro Thr Thr  
625 630 635 640

Thr Pro Glu Pro Lys Cys Pro Glu Asp Trp Gly Ala Ser Ser Arg Thr  
645 650 655

Ser Leu Cys Phe Lys Leu Tyr Ala Lys Gly Lys His Glu Lys Lys Thr  
660 665 670

Trp Phe Glu Ser Arg Asp Phe Cys Arg Ala Leu Gly Gly Asp Leu Ala  
675 680 685

Ser Ile Asn Asn Lys Glu Glu Gln Gln Thr Ile Trp Arg Leu Ile Thr  
690 695 700

Ala Ser Gly Ser Tyr His Lys Leu Phe Trp Leu Gly Leu Thr Tyr Gly  
705 710 715 720

Ser Pro Ser Glu Gly Phe Thr Trp Ser Asp Gly Ser Pro Val Ser Tyr  
725 730 735

Glu Asn Trp Ala Tyr Gly Glu Pro Asn Asn Tyr Gln Asn Val Glu Tyr  
740 745 750

Cys Gly Glu Leu Lys Gly Asp Pro Thr Met Ser Trp Asn Asp Ile Asn  
755 760 765

Cys Glu His Leu Asn Asn Trp Ile Cys Gln Ile Gln Lys Gly Gln Thr  
770 775 780

Pro Lys Pro Glu Pro Thr Pro Ala Pro Gln Asp Asn Pro Pro Val Thr  
785 790 795 800

Glu Asp Gly Trp Val Ile Tyr Lys Asp Tyr Gln Tyr Tyr Phe Ser Lys  
805 810 815

Glu Lys Glu Thr Met Asp Asn Ala Arg Ala Phe Cys Lys Arg Asn Phe  
820 825 830

Gly Asp Leu Val Ser Ile Gln Ser Glu Ser Glu Lys Lys Phe Leu Trp  
835 840 845

Lys Tyr Val Asn Arg Asn Asp Ala Gln Ser Ala Tyr Phe Ile Gly Leu  
850 855 860

Leu Ile Ser Leu Asp Lys Lys Phe Ala Trp Met Asp Gly Ser Lys Val  
865 870 875 880

Asp Tyr Val Ser Trp Ala Thr Gly Glu Pro Asn Phe Ala Asn Glu Asp  
885 890 895

Glu Asn Cys Val Thr Met Tyr Ser Asn Ser Gly Phe Trp Asn Asp Ile  
900 905 910

Asn Cys Gly Tyr Pro Asn Ala Phe Ile Cys Gln Arg His Asn Ser Ser  
915 920 925

Ile Asn Ala Thr Thr Val Met Pro Thr Met Pro Ser Val Pro Ser Gly  
930 935 940

Cys Lys Glu Gly Trp Asn Phe Tyr Ser Asn Lys Cys Phe Lys Ile Phe  
 945 950 955 960

Gly Phe Met Glu Glu Glu Arg Lys Asn Trp Gln Glu Ala Arg Lys Ala  
 965 970 975

Cys Ile Gly Phe Gly Gly Asn Leu Val Ser Ile Gln Asn Glu Lys Glu  
 980 985 990

Gln Ala Phe Leu Thr Tyr His Met Lys Asp Ser Thr Phe Ser Ala Trp  
 995 1000 1005

Thr Gly Leu Asn Asp Val Asn Ser Glu His Thr Phe Leu Trp Thr  
 1010 1015 1020

Asp Gly Arg Gly Val His Tyr Thr Asn Trp Gly Lys Gly Tyr Pro  
 1025 1030 1035

Gly Gly Arg Arg Ser Ser Leu Ser Tyr Glu Asp Ala Asp Cys Val  
 1040 1045 1050

Val Ile Ile Gly Gly Ala Ser Asn Glu Ala Gly Lys Trp Met Asp  
 1055 1060 1065

Asp Thr Cys Asp Ser Lys Arg Gly Tyr Ile Cys Gln Thr Arg Ser  
 1070 1075 1080

Asp Pro Ser Leu Thr Asn Pro Pro Ala Thr Ile Gln Thr Asp Gly  
 1085 1090 1095

Phe Val Lys Tyr Gly Lys Ser Ser Tyr Ser Leu Met Arg Gln Lys  
 1100 1105 1110

Phe Gln Trp His Glu Ala Glu Thr Tyr Cys Lys Leu His Asn Ser  
 1115 1120 1125

Leu Ile Ala Ser Ile Leu Asp Pro Tyr Ser Asn Ala Phe Ala Trp  
 1130 1135 1140

Leu Gln Met Glu Thr Ser Asn Glu Arg Val Trp Ile Ala Leu Asn  
 1145 1150 1155

Ser Asn Leu Thr Asp Asn Gln Tyr Thr Trp Thr Asp Lys Trp Arg  
 1160 1165 1170

Val Arg Tyr Thr Asn Trp Ala Ala Asp Glu Pro Lys Leu Lys Ser  
 1175 1180 1185

Ala Cys Val Tyr Leu Asp Leu Asp Gly Tyr Trp Lys Thr Ala His  
 1190 1195 1200

Cys Asn Glu Ser Phe Tyr Phe Leu Cys Lys Arg Ser Asp Glu Ile  
 1205 1210 1215

Pro Ala Thr Glu Pro Pro Gln Leu Pro Gly Arg Cys Pro Glu Ser  
 1220 1225 1230

Asp His Thr Ala Trp Ile Pro Phe His Gly His Cys Tyr Tyr Ile  
 1235 1240 1245

Glu Ser Ser Tyr Thr Arg Asn Trp Gly Gln Ala Ser Leu Glu Cys  
 1250 1255 1260

Leu Arg Met Gly Ser Ser Leu Val Ser Ile Glu Ser Ala Ala Glu  
 1265 1270 1275

Ser Ser Phe Leu Ser Tyr Arg Val Glu Pro Leu Lys Ser Lys Thr  
 1280 1285 1290

Asn Phe Trp Ile Gly Leu Phe Arg Asn Val Glu Gly Thr Trp Leu  
 1295 1300 1305

Trp Ile Asn Asn Ser Pro Val Ser Phe Val Asn Trp Asn Thr Gly  
 1310 1315 1320

Asp Pro Ser Gly Glu Arg Asn Asp Cys Val Ala Leu His Ala Ser  
 1325 1330 1335

Ser Gly Phe Trp Ser Asn Ile His Cys Ser Ser Tyr Lys Gly Tyr  
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Ile Cys Lys Arg Pro Lys Ile Ile Asp Ala Lys Pro Thr His Glu  
 1355 1360 1365

Leu Leu Thr Thr Lys Ala Asp Thr Arg Lys Met Asp Pro Ser Lys  
 1370 1375 1380

Pro Ser Ser Asn Val Ala Gly Val Val Ile Ile Val Ile Leu Leu  
 1385 1390 1395

Ile Leu Thr Gly Ala Gly Leu Ala Ala Tyr Phe Phe Tyr Lys Lys  
 1400 1405 1410

Arg Arg Val His Leu Pro Gln Glu Gly Ala Phe Glu Asn Thr Leu  
 1415 1420 1425

Tyr Phe Asn Ser Gln Ser Ser Pro Gly Thr Ser Asp Met Lys Asp  
 1430 1435 1440

Leu Val Gly Asn Ile Glu Gln Asn Glu His Ser Val Ile  
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 tcacctgcta cacacccctc agagggactg gaggagaact actgcaggaa tccagacaac 120  
 gatccgcagg gcccctggtg ctatactact gatccagaaa agagatatga ctactgc当地  
 attcttgagt gtgaagagga atgtatgcat tgcagtggag aaaactatga cggcaaaatt 180  
 tccaagacca tgtctggact ggaatgccag gcctggact ctcagagccc acacgctcat  
 ggatacattc cttccaaatt tccaaacaag aacctgaaga agaattactg tcgtaacccc 240  
 gatagggagc tgccgc当地 ttg gtgtttcacc accgacccc acaagcgctg ggaactttgt  
 gacatcccc gctgcacaac acctccacca tcttctggtc ccacctacca gtgtctgaag 300  
 ggaacaggtg aaaactatcg cggaatgtg gctgttaccg tgtccggca cacctgtcag  
 cactggagtg cacagacccc tcacacacat gaaaggacac cagaaaactt cccctgcaaa 360  
 aatttggatg aaaactactg cc当地caatcct gacggaaaaaa gggccccatg gtgccataca  
 accaacagcc aagtgc当地 ggagtactgt aagataccgt cctgtgactc ctccccagta 420  
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 Met Ala Ser Phe Ser Ala Glu Thr Asn Ser Thr Asp Leu Leu Ser Gln  
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cca tgg aat gag ccc cca gta att ctc tcc atg gtc att ctc agc ctt  
 Pro Trp Asn Glu Pro Pro Val Ile Leu Ser Met Val Ile Leu Ser Leu 96  
 20 25 30

act ttt tta ctg gga ttg cca ggc aat ggg ctg gtg ctg tgg gtg gct  
 Thr Phe Leu Leu Gly Leu Pro Gly Asn Gly Leu Val Leu Trp Val Ala 144

35	40	45	
ggc ctg aag atg cag cg	aca gtg aac aca att tgg ttc ctc cac ctc		192
Gly Leu Lys Met Gln Arg	Thr Val Asn Thr Ile Trp Phe Leu His Leu		
50	55	60	
acc ttg gcg gac ctc ctc tgc tgc ctc tcc ttg ccc ttc tcg ctg gct			240
Thr Leu Ala Asp Leu Leu Cys Cys Leu Ser Leu Pro Phe Ser Leu Ala			
65	70	75	80
cac ttg gct ctc cag gga cag tgg ccc tac ggc agg ttc cta tgc aag			288
His Leu Ala Leu Gln Gly Gln Trp Pro Tyr Gly Arg Phe Leu Cys Lys			
85	90	95	
ctc atc ccc tcc atc att gtc ctc aac atg ttt gcc agt gtc ttc ctg			336
Leu Ile Pro Ser Ile Ile Val Leu Asn Met Phe Ala Ser Val Phe Leu			
100	105	110	
ctt act gcc att agc ctg gat cgc tgt ctt gtg gta ttc aag cca atc			384
Leu Thr Ala Ile Ser Leu Asp Arg Cys Leu Val Val Phe Lys Pro Ile			
115	120	125	
tgg tgt cag aat cat cgc aat gta ggg atg gcc tgc tct atc tgt gga			432
Trp Cys Gln Asn His Arg Asn Val Gly Met Ala Cys Ser Ile Cys Gly			
130	135	140	
tgt atc tgg gtg gtg gct ttt gtg atg tgc att cct gtg ttc gtg tac			480
Cys Ile Trp Val Val Ala Phe Val Met Cys Ile Pro Val Phe Val Tyr			
145	150	155	160
cg gaa atc ttc act aca gac aac cat aat aga tgt ggc tac aaa ttt			528
Arg Glu Ile Phe Thr Thr Asp Asn His Asn Arg Cys Gly Tyr Lys Phe			
165	170	175	
gg ttc tcc agc tca tta gat tat cca gac ttt tat gga gat cca cta			576
Gly Leu Ser Ser Ser Leu Asp Tyr Pro Asp Phe Tyr Gly Asp Pro Leu			
180	185	190	
gaa aac agg tct ctt gaa aac att gtt cag ccg cct gga gaa atg aat			624
Glu Asn Arg Ser Leu Glu Asn Ile Val Gln Pro Pro Gly Glu Met Asn			
195	200	205	
gat agg tta gat cct tcc tct caa aca aat gat cat cct tgg aca			672
Asp Arg Leu Asp Pro Ser Ser Phe Gln Thr Asn Asp His Pro Trp Thr			
210	215	220	
gtc ccc act gtc ttc caa cct caa aca ttt caa aga cct tct gca gat			720
Val Pro Thr Val Phe Gln Pro Gln Thr Phe Gln Arg Pro Ser Ala Asp			
225	230	235	240
tca ctc cct agg ggt tct gct agg tta aca agt caa aat ctg tat tct			768
Ser Leu Pro Arg Gly Ser Ala Arg Leu Thr Ser Gln Asn Leu Tyr Ser			
245	250	255	
aat gta ttt aaa cct gct gat gtg gtc tca cct aaa atc ccc agt ggg			816
Asn Val Phe Lys Pro Ala Asp Val Val Ser Pro Lys Ile Pro Ser Gly			
260	265	270	
ttt cct att gaa gat cac gaa acc agc cca ctg gat aac tct gat gct			864
Phe Pro Ile Glu Asp His Glu Thr Ser Pro Leu Asp Asn Ser Asp Ala			

275	280	285	
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ttc tac gag tct gag cta cca caa ggt ttc cag gat tat tac aat tta Phe Tyr Glu Ser Glu Leu Pro Gln Gly Phe Gln Asp Tyr Tyr Asn Leu 305	310	315	960
ggc caa ttc aca gat gac gat caa gtg cca aca ccc ctc gtg gca ata Gly Gln Phe Thr Asp Asp Gln Val Pro Thr Pro Leu Val Ala Ile 325	330	335	1008
acg atc act agg cta gtg gtg ggt ttc ctg ctg ccc tct gtt atc atg Thr Ile Thr Arg Leu Val Val Gly Phe Leu Leu Pro Ser Val Ile Met 340	345	350	1056
ata gcc tgt tac agc ttc att gtc ttc cga atg caa agg ggc cgc ttc Ile Ala Cys Tyr Ser Phe Ile Val Phe Arg Met Gln Arg Gly Arg Phe 355	360	365	1104
gcc aag tct cag agc aaa acc ttt cga gtg gcc gtg gtg gtg gct Ala Lys Ser Gln Ser Lys Thr Phe Arg Val Ala Val Val Val Ala 370	375	380	1152
gtc ttt ctt gtc tgc tgg act cca tac cac att ttt gga gtc ctg tca Val Phe Leu Val Cys Trp Thr Pro Tyr His Ile Phe Gly Val Leu Ser 385	390	395	1200
ttg ctt act gac cca gaa act ccc ttg ggg aaa act ctg atg tcc tgg Leu Leu Thr Asp Pro Glu Thr Pro Leu Gly Lys Thr Leu Met Ser Trp 405	410	415	1248
gat cat gta tgc att gct cta gca tct gcc aat agt tgc ttt aat ccc Asp His Val Cys Ile Ala Leu Ala Ser Ala Asn Ser Cys Phe Asn Pro 420	425	430	1296
ttc ctt tat gcc ctc ttg ggg aaa gat ttt agg aag aaa gca agg cag Phe Leu Tyr Ala Leu Leu Gly Lys Asp Phe Arg Lys Lys Ala Arg Gln 435	440	445	1344
tcc att cag gga att ctg gag gca gcc ttc agt gag gag ctc aca cgt Ser Ile Gln Gly Ile Leu Glu Ala Ala Phe Ser Glu Glu Leu Thr Arg 450	455	460	1392
tcc acc cac tgt ccc tca aac aat gtc att tca gaa aga aat agt aca Ser Thr His Cys Pro Ser Asn Asn Val Ile Ser Glu Arg Asn Ser Thr 465	470	475	1440
act gtg tga Thr Val			1449

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Pro Trp Asn Glu Pro Pro Val Ile Leu Ser Met Val Ile Leu Ser Leu  
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Thr Phe Leu Leu Gly Leu Pro Gly Asn Gly Leu Val Leu Trp Val Ala  
 35 40 45

Gly Leu Lys Met Gln Arg Thr Val Asn Thr Ile Trp Phe Leu His Leu  
 50 55 60

Thr Leu Ala Asp Leu Leu Cys Cys Leu Ser Leu Pro Phe Ser Leu Ala  
 65 70 75 80

His Leu Ala Leu Gln Gly Gln Trp Pro Tyr Gly Arg Phe Leu Cys Lys  
 85 90 95

Leu Ile Pro Ser Ile Ile Val Leu Asn Met Phe Ala Ser Val Phe Leu  
 100 105 110

Leu Thr Ala Ile Ser Leu Asp Arg Cys Leu Val Val Phe Lys Pro Ile  
 115 120 125

Trp Cys Gln Asn His Arg Asn Val Gly Met Ala Cys Ser Ile Cys Gly  
 130 135 140

Cys Ile Trp Val Val Ala Phe Val Met Cys Ile Pro Val Phe Val Tyr  
 145 150 155 160

Arg Glu Ile Phe Thr Thr Asp Asn His Asn Arg Cys Gly Tyr Lys Phe  
 165 170 175

Gly Leu Ser Ser Ser Leu Asp Tyr Pro Asp Phe Tyr Gly Asp Pro Leu  
 180 185 190

Glu Asn Arg Ser Leu Glu Asn Ile Val Gln Pro Pro Gly Glu Met Asn  
 195 200 205

Asp Arg Leu Asp Pro Ser Ser Phe Gln Thr Asn Asp His Pro Trp Thr  
 210 215 220

Val Pro Thr Val Phe Gln Pro Gln Thr Phe Gln Arg Pro Ser Ala Asp  
 225 230 235 240

Ser Leu Pro Arg Gly Ser Ala Arg Leu Thr Ser Gln Asn Leu Tyr Ser  
 245 250 255

Asn Val Phe Lys Pro Ala Asp Val Val Ser Pro Lys Ile Pro Ser Gly  
 260 265 270

Phe Pro Ile Glu Asp His Glu Thr Ser Pro Leu Asp Asn Ser Asp Ala  
 275 280 285

Phe Leu Ser Thr His Leu Lys Leu Phe Pro Ser Ala Ser Ser Asn Ser  
 290 295 300

Phe Tyr Glu Ser Glu Leu Pro Gln Gly Phe Gln Asp Tyr Tyr Asn Leu  
 305 310 315 320

Gly Gln Phe Thr Asp Asp Asp Gln Val Pro Thr Pro Leu Val Ala Ile  
 325 330 335

Thr Ile Thr Arg Leu Val Val Gly Phe Leu Leu Pro Ser Val Ile Met  
 340 345 350

Ile Ala Cys Tyr Ser Phe Ile Val Phe Arg Met Gln Arg Gly Arg Phe  
 355 360 365

Ala Lys Ser Gln Ser Lys Thr Phe Arg Val Ala Val Val Val Ala  
 370 375 380

Val Phe Leu Val Cys Trp Thr Pro Tyr His Ile Phe Gly Val Leu Ser  
 385 390 395 400

Leu Leu Thr Asp Pro Glu Thr Pro Leu Gly Lys Thr Leu Met Ser Trp  
 405 410 415

Asp His Val Cys Ile Ala Leu Ala Ser Ala Asn Ser Cys Phe Asn Pro  
 420 425 430

Phe Leu Tyr Ala Leu Leu Gly Lys Asp Phe Arg Lys Lys Ala Arg Gln  
 435 440 445

Ser Ile Gln Gly Ile Leu Glu Ala Ala Phe Ser Glu Glu Leu Thr Arg  
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Ser Thr His Cys Pro Ser Asn Asn Val Ile Ser Glu Arg Asn Ser Thr  
 465 470 475 480

Thr Val

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Gly Ile Pro Arg Thr Gln Gly Ser Asp Gly Gly Ala Gln Asp Cys Cys  
 20 25 30

Leu Lys Tyr Ser Gln Arg Lys Ile Pro Ala Lys Val Val Arg Ser Tyr  
 35 40 45

Arg Lys Gln Glu Pro Ser Leu Gly Cys Ser Ile Pro Ala Ile Leu Phe  
 50 55 60

Leu Pro Arg Lys Arg Ser Gln Ala Glu Leu Cys Ala Asp Pro Lys Glu  
 65 70 75 80

Leu Trp Val Gln Gln Leu Met Gln His Leu Asp Lys Thr Pro Ser Pro  
 85 90 95

Gln Lys Pro Ala Gln Gly Cys Arg Lys Asp Arg Gly Ala Ser Lys Thr  
 100 105 110

Gly Lys Lys Gly Lys Gly Ser Lys Gly Cys Lys Arg Thr Glu Arg Ser  
 115 120 125

Gln Thr Pro Lys Gly Pro  
 130

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acagtcatct gtctggacgc gctgggtgga tgcgggggc tcctggAAC tgtgttgag	180
ccgagcaagc gctagccagg cgcaagcgcg cacagactgt agccatccga ggacaccccc	240
gcccccccg cccaccccgga gacaccccg cagaatcgcc tccggatccc ctgcagtcgg	300
cgggaggtaa ggagcagggc ttgcaaaccg cccggcgccc agggaaagcga cgagcgccgg	360
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agctgtcgga gagccgggtgc gtccccaccc caggctgggg ttcttctcca aagggtgccc	660
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cctgccattc ccgggaacag gggctcagcc tctccctccc tggaagagga cgttgtcg	840
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gcagcgggtg aatgccgagg ggcgttgc ccaaatttggg gaggggaagg atttgtggat	960
atgggtgtct gttgttggtc tctgtctaga gaaaggcttt ttttatttg caaagtttc	1020
taaatccccct gctatcattt gcactcctga gggtgcattt ttacaaaggg ggtagaaggt	1080
actccaaata ccattcccg tagctgggtc ggagagcctg gggctcccc tgagcagccg	1140
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gttgcagtg ttggaggtcg gcgcggccc ccgccttcg cgccccccac gggaaaggaag	1560
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tcgagttga ctcgctacag ccctgcttct acccggacga agatgacttc tacttcggcg	1740
gccccgactc gaccccccgg ggggaggaca tctggaagaa gtttgagctg ctgcccacgc	1800
ccccgctgtc gcccagccgt ggcttcgcgg agcacagctc cgagcccccg agctgggtca	1860
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Ser Lys Leu Asp Tyr Phe Phe Ile Ile Val Ile Ser Thr Leu Ser Leu			
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Phe Ile Ile Ile Met Tyr Phe Val Lys Ile Lys Trp Tyr Ser Ile Leu			
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Ile Val Ile Tyr Ala Tyr Ile Thr Lys Ile Ser Asp Ser Ile Phe Val  
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Ile Phe Pro Ser Phe Phe Val Val Tyr Val Thr Ile Ser Ile Leu Phe  
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Ser Tyr Ile Ile Asn Arg Val Leu Lys Lys Ile Ser Thr Pro Tyr Leu  
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Thr Phe Ser Leu Phe Phe Tyr Ser Gln Ile Asn Ser Asp Glu Ala  
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Lys Val Ile Arg Gln Tyr Ser Leu Phe Tyr Trp Tyr His Tyr Ile Leu  
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Ser Ile Leu Thr Leu Tyr Ser Gln Phe Leu Leu Lys Glu Met Lys Tyr  
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Lys Arg Asn Gln Glu Glu Ile Glu Thr Tyr Tyr Glu Tyr Thr Leu Lys  
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Ser Thr Lys Gly Glu Gly Arg Gly Leu Gly Leu Ser Thr Leu Lys Glu  
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Asp Ile Asn Gly Ile Lys Leu Gly Ser Glu Ile Arg Lys His Asp Pro  
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Val Gly Asn Ile Ile Phe Val Thr Ser His Ser Glu Leu Thr Tyr Leu  
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Pro Ala Glu Leu Arg Thr Arg Ile Ile Asp Cys Leu Glu Thr Ala His  
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Thr Arg Leu Gln Leu Leu Ser Lys Asp Asn Ser Val Glu Thr Ile Glu  
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Leu Lys Arg Gly Ser Asn Ser Val Tyr Val Gln Tyr Asp Asp Ile Met  
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Phe Phe Glu Ser Ser Thr Lys Ser His Arg Leu Ile Ala His Leu Asp  
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Asn Arg Gln Ile Glu Phe Tyr Gly Asn Leu Lys Glu Leu Ser Gln Leu  
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Asp Asp Arg Phe Phe Arg Cys His Asn Ser Phe Val Val Asn Arg His  
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act cct gtc atc agt acg ctc aag cag aat tat cct gat gca aaa atc Thr Pro Val Ile Ser Thr Leu Lys Gln Asn Tyr Pro Asp Ala Lys Ile 15 20 25	521
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Cys Val Asp Glu Ile Ala Arg Gly Cys Glu Thr Lys Pro Ile Thr Gly			
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ctt gca ggt aaa aca cgt ttt cct gaa ctg ggt gca tta att gat cat			1193
Leu Ala Gly Lys Thr Arg Phe Pro Glu Leu Gly Ala Leu Ile Asp His			
235	240	245	250
gca gtg ctt ttt att ggt gtg gat tct gcg ccg gga cat att gca gcg			1241
Ala Val Leu Phe Ile Gly Val Asp Ser Ala Pro Gly His Ile Ala Ala			
255	260	265	
gca gtg aaa acg cca gtc att agt cta ttt ggt gca acg gat cac gta			1289
Ala Val Lys Thr Pro Val Ile Ser Leu Phe Gly Ala Thr Asp His Val			
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Phe Trp Arg Pro Trp Thr Glu Asn Ile Ile Gln Phe Trp Ala Gly Asn			
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tat cag aaa atg ccg acc cgg cat gaa ctt gac cgc aac aaa aaa tat			1385
Tyr Gln Lys Met Pro Thr Arg His Glu Leu Asp Arg Asn Lys Lys Tyr			
300	305	310	
ctt tct gtt atc cca gcg gag gat gtg atc gcc gct acg gaa aag ctg			1433
Leu Ser Val Ile Pro Ala Glu Asp Val Ile Ala Ala Thr Glu Lys Leu			
315	320	325	330
ttg cca gaa gat gcc cct tca gct gac agg aat gca caa tta tg atc			1480
Leu Pro Glu Asp Ala Pro Ser Ala Asp Arg Asn Ala Gln Leu Ile			
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Val Ala Phe Cys Leu Tyr Lys Tyr Phe Pro Phe Gly Gly Leu Gln Arg			
350	355	360	
gac ttt atg cgc att gca tca aca gtt gcc gca cgg ggc cac cat gtt			1576
Asp Phe Met Arg Ile Ala Ser Thr Val Ala Ala Arg Gly His His Val			
365	370	375	
cgg gta tat aca cag tcg tgg gaa ggc gat tgc ccg aaa gca ttt gag			1624
Arg Val Tyr Thr Gln Ser Trp Glu Gly Asp Cys Pro Lys Ala Phe Glu			
380	385	390	
ctt att cag gtg cca gtt aag tcc cat acc aac cat gga cgc aat gca			1672
Leu Ile Gln Val Pro Val Lys Ser His Thr Asn His Gly Arg Asn Ala			
395	400	405	
gaa tat tat gcc tgg gta caa aat cat ctc aaa gag cat ccc gca gat			1720
Glu Tyr Tyr Ala Trp Val Gln Asn His Leu Lys Glu His Pro Ala Asp			
410	415	420	425
cgc gtt gtt ggg ttt aat aag atg cct ggc ctg gat gtt tat ttt gcc			1768
Arg Val Val Gly Phe Asn Lys Met Pro Gly Leu Asp Val Tyr Phe Ala			
430	435	440	
gct gat gtt tgt tac gcc gag aaa gtt gcg caa gaa aaa ggt ttt tta			1816
Ala Asp Val Cys Tyr Ala Glu Lys Val Ala Gln Glu Lys Gly Phe Leu			
445	450	455	
tat cgt tta aca tca cga tat cgc cat tat gcc gca ttt gag cga gcg			1864

Tyr Arg Leu Thr Ser Arg Tyr Arg His Tyr Ala Ala Phe Glu Arg Ala			
460	465	470	
act ttc gag cag ggt aaa tcg acg aaa ctt atg atg ctg acc gat aag			1912
Thr Phe Glu Gln Gly Lys Ser Thr Lys Leu Met Met Leu Thr Asp Lys			
475	480	485	
caa atc gcc gat ttc cag aag cat tat caa act gaa cct gaa cgt ttt			1960
Gln Ile Ala Asp Phe Gln Lys His Tyr Gln Thr Glu Pro Glu Arg Phe			
490	495	500	505
caa att ctt cct ccc ggt att tat ccg gac aga aaa tac agt gag caa			2008
Gln Ile Leu Pro Pro Gly Ile Tyr Pro Asp Arg Lys Tyr Ser Glu Gln			
510	515	520	
atc cca aac agc cgt gaa att tat cgc cag aaa aat ggc ata aaa gag			2056
Ile Pro Asn Ser Arg Glu Ile Tyr Arg Gln Lys Asn Gly Ile Lys Glu			
525	530	535	
caa caa aac tta tta ctg cag gtt gga tca gat ttt ggc cgt aaa ggt			2104
Gln Gln Asn Leu Leu Gln Val Gly Ser Asp Phe Gly Arg Lys Gly			
540	545	550	
gta gat cgc tca att gaa gct ttg gca tcg tta ccg gaa tca tta cgt			2152
Val Asp Arg Ser Ile Glu Ala Leu Ala Ser Leu Pro Glu Ser Leu Arg			
555	560	565	
cac aat acg ctt tta ttt gtt ggt cag gat aag ccg cga aaa ttt			2200
His Asn Thr Leu Leu Phe Val Val Gly Gln Asp Lys Pro Arg Lys Phe			
570	575	580	585
gaa gcg ctg gca gaa aaa ctc ggc gtg cg <sup>g</sup> agc aat gtg cat ttc ttc			2248
Glu Ala Leu Ala Glu Lys Leu Gly Val Arg Ser Asn Val His Phe Phe			
590	595	600	
tcc ggt cgc aat gat gtg tca gaa tta atg gca gcc gct gat tta tta			2296
Ser Gly Arg Asn Asp Val Ser Glu Leu Met Ala Ala Ala Asp Leu Leu			
605	610	615	
ctg cat ccc gct tat cag gaa gcc gcg ggt atc gtt ctt cta gaa gcg			2344
Leu His Pro Ala Tyr Gln Glu Ala Ala Gly Ile Val Leu Leu Glu Ala			
620	625	630	
atc act gct ggg tta cct gtt tta aca aca gcg gta tgt ggg tac gcg			2392
Ile Thr Ala Gly Leu Pro Val Leu Thr Thr Ala Val Cys Gly Tyr Ala			
635	640	645	
cat tat att gcg gat gcc aat tgt gga acg gtc atc gct gaa cct ttc			2440
His Tyr Ile Ala Asp Ala Asn Cys Gly Thr Val Ile Ala Glu Pro Phe			
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tct cag gaa caa tta aat gaa gtt tta cgt aaa gcg tta act cag tcg			2488
Ser Gln Glu Gln Leu Asn Glu Val Leu Arg Lys Ala Leu Thr Gln Ser			
670	675	680	
cca ttg cga atg gcc tgg gcg gag aat gct cgc cat tat gcc gat act			2536
Pro Leu Arg Met Ala Trp Ala Glu Asn Ala Arg His Tyr Ala Asp Thr			
685	690	695	
caq qat ttg tat aqc ttg cca gaa aaa gcc gcg gat atc att aca ggt			2584

Gln Asp Leu Tyr Ser Leu Pro Glu Lys Ala Ala Asp Ile Ile Thr Gly		
700	705	710
ggt tta g atg gtt gaa tta aaa gag ccg ctt gcc aca ctt tgg cgt ggt		2633
Gly Leu Met Val Glu Leu Lys Glu Pro Leu Ala Thr Leu Trp Arg Gly		
715	720	725
aaa gat gct ttt gca gag gtc aaa aaa ctg aac ggc gag gtc ttt cgt		2681
Lys Asp Ala Phe Ala Glu Val Lys Lys Leu Asn Gly Glu Val Phe Arg		
730	735	740
745		
gaa ctg gag act cgt cgt aca tta cgc ttt gaa ctg tcc ggg aaa agc		2729
Glu Leu Glu Thr Arg Arg Thr Leu Arg Phe Glu Leu Ser Gly Lys Ser		
750	755	760
Tyr Phe Leu Lys Trp His Lys Gly Thr Thr Leu Lys Glu Ile Ile Lys		
765	770	775
aat cta ctc tca ttg cgg atg ccc gtt ttg ggc gca gac aga gag tgg		2825
Asn Leu Leu Ser Leu Arg Met Pro Val Leu Gly Ala Asp Arg Glu Trp		
780	785	790
cac gct att cat cgc ctg agt gat gtt ggc gtt gat aca atg aag ggc		2873
His Ala Ile His Arg Leu Ser Asp Val Gly Val Asp Thr Met Lys Gly		
795	800	805
att ggg ttt ggc gaa aaa ggg tta aat cca tta act cgc gca tca ttt		2921
Ile Gly Phe Gly Glu Lys Gly Leu Asn Pro Leu Thr Arg Ala Ser Phe		
810	815	820
825		
att att acc gaa gat ctc act ccc aca att agc ctt gaa gat tat tgt		2969
Ile Ile Thr Glu Asp Leu Thr Pro Thr Ile Ser Leu Glu Asp Tyr Cys		
830	835	840
gcc gat tgg gca gtc aac ccg cct gat ata cgt gtt aag cgt atg ctg		3017
Ala Asp Trp Ala Val Asn Pro Pro Asp Ile Arg Val Lys Arg Met Leu		
845	850	855
ata gca cgt gta gca act atg gtg cgt aaa atg cat act gca ggg ata		3065
Ile Ala Arg Val Ala Thr Met Val Arg Lys Met His Thr Ala Gly Ile		
860	865	870
aat cac cgc gac tgt tac att tgc cac ttt ttg ctt cat ttg cca ttt		3113
Asn His Arg Asp Cys Tyr Ile Cys His Phe Leu Leu His Leu Pro Phe		
875	880	885
act ggc cgg gaa gat gaa tta aaa att tca gtt atc gat ctg cat cgg		3161
Thr Gly Arg Glu Asp Glu Leu Lys Ile Ser Val Ile Asp Leu His Arg		
890	895	900
905		
gca cag ata cgt gca aaa gta ccg cgc cgc tgg cgc gat aaa gac ctg		3209
Ala Gln Ile Arg Ala Lys Val Pro Arg Arg Trp Arg Asp Lys Asp Leu		
910	915	920
att ggt tta tat ttc tca tca atg aat att ggc ctg acg caa aga gat		3257
Ile Gly Leu Tyr Phe Ser Ser Met Asn Ile Gly Leu Thr Gln Arg Asp		
925	930	935
atc tgg cga ttt atg aag gtt tat ttt ggg atg cct tta cgc aaa ata		3305

Ile Trp Arg Phe Met Lys Val Tyr Phe Gly Met Pro Leu Arg Lys Ile		
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Leu Ser Leu Glu Gln Asn Leu Leu Asn Met Ala Ser Val Lys Ala Glu		
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cgt att aaa gag cga aca caa cgc aaa gga tta taaaaatatt tattagtatg	3406	
Arg Ile Lys Glu Arg Thr Gln Arg Lys Gly Leu		
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Met Thr Ile Tyr Phe Ile Asn Trp Val Ala Asp		
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Tyr Glu Leu Lys Met Ile Gln Tyr Leu Lys Lys Lys Tyr Lys Ile Lys		
995	1000	1005
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Asn Ile Thr Thr Pro Lys Lys Tyr Asn Trp Ile Asn Lys Lys Ile		
1010	1015	1020
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Ser Lys Ile Gly Met Asp Asn Ala Trp Leu Gly Arg Leu Phe Ile		
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aag cat tac ctc aat gat att aaa aaa gat gac ata att atc att	3641	
Lys His Tyr Leu Asn Asp Ile Lys Lys Asp Asp Ile Ile Ile Ile		
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gat ttt gag cat aga ttt ata ggg aat gaa aag atc aag gca ata	3821	
Asp Phe Glu His Arg Phe Ile Gly Asn Glu Lys Ile Lys Ala Ile		
1100	1105	1110
gaa caa ttt ttt cct ata gga atg gat gaa att aga aat tat agt	3866	
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Leu Ser Asp Lys Asn Asn Ser Gln Pro Ile Cys Phe Phe Leu Gly		
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Arg Asp Lys Gly Arg Leu Gln Ile Ile Asn Glu Leu Ala Glu Arg		
1145	1150	1155
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Lys	Thr	Ser	Ser	Ser	Thr	Ser	Lys	Tyr	Leu	Ile	Glu	Lys	Gln	Ile	
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Ile	Gly	His	Asp	Asp	Trp	Asp	Lys	Leu	Glu	Tyr	Phe	Ile	Asn	Ser	
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Val	Ile	Ser	Cys	Leu	Phe	Ala	Ala	Lys	Ala	Arg	Lys	Lys	Ser	Gly	
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Ile	Asp	Met	Pro	Val	Phe	Ser	Trp	Pro	His	Phe	Ser	Leu	Asp	His	
1410						1415					1420				
aaa	aaa	cat	gct	gaa	tat	atc	acc	tgt	gcc	gac	tat	cat	tta	gca	4815
Lys	Lys	His	Ala	Glu	Tyr	Ile	Thr	Cys	Ala	Asp	Tyr	His	Leu	Ala	
1425						1430					1435				
atc	agc	tct	ggc	att	aaa	cag	caa	atg	att	aat	cga	ggt	gta	gca	4860
Ile	Ser	Ser	Gly	Ile	Lys	Gln	Gln	Met	Ile	Asn	Arg	Gly	Val	Ala	
1440						1445					1450				
gaa	tcg	acg	ata	aat	gtt	att	ttt	aat	ccc	gtc	gaa	act	aaa	gac	4905
Glu	Ser	Thr	Ile	Asn	Val	Ile	Phe	Asn	Pro	Val	Glu	Thr	Lys	Asp	
1455						1460					1465				
tca	gtc	att	ccc	gcg	ccc	gag	gaa	ggg	gaa	acg	gca	acg	ttt	att	4950
Ser	Val	Ile	Pro	Ala	Pro	Glu	Glu	Gly	Glu	Thr	Ala	Thr	Phe	Ile	
1470						1475					1480				
tat	gtt	ggg	cgt	atg	aaa	ttt	gaa	ggc	cag	aaa	aga	gtt	aaa	gac	4995
Tyr	Val	Gly	Arg	Met	Lys	Phe	Glu	Gly	Gln	Lys	Arg	Val	Lys	Asp	
1485						1490					1495				
ctg	ctt	gat	ggc	tta	tca	caa	gcg	aaa	ggt	aac	tgg	aaa	ctc	cat	5040
Leu	Leu	Asp	Gly	Leu	Ser	Gln	Ala	Lys	Gly	Asn	Trp	Lys	Leu	His	
1500						1505					1510				
gta	ttg	ggt	gat	ggc	tcc	gat	ttc	gaa	aaa	tgc	cag	gct	tat	ggg	5085
Val	Leu	Gly	Asp	Gly	Ser	Asp	Phe	Glu	Lys	Cys	Gln	Ala	Tyr	Gly	
1515						1520					1525				
aga	gaa	tta	aat	att	gat	gat	cga	att	gtc	tgg	tat	ggt	tgg	caa	5130
Arg	Glu	Leu	Asn	Ile	Asp	Asp	Arg	Ile	Val	Trp	Tyr	Gly	Trp	Gln	
1530						1535					1540				
caa	tat	ccc	tgg	gaa	ttg	gtc	cag	caa	gat	att	gaa	aaa	gtg	agt	5175
Gln	Tyr	Pro	Trp	Glu	Leu	Val	Gln	Gln	Asp	Ile	Glu	Lys	Val	Ser	
1545						1550					1555				
gcg	tta	ttg	ctc	acg	tca	tct	ttt	gaa	ggt	ttc	cca	atg	acc	cta	5220
Ala	Leu	Leu	Leu	Thr	Ser	Ser	Phe	Glu	Gly	Phe	Pro	Met	Thr	Leu	
1560						1565					1570				
ctt	gaa	gcc	ttg	tcg	tgg	ggg	att	cct	tgt	atc	agt	gcc	gat	tgt	5265
Leu	Glu	Ala	Leu	Ser	Trp	Gly	Ile	Pro	Cys	Ile	Ser	Ala	Asp	Cys	
1575						1580					1585				
gtc	tcc	ggg	cct	gct	gac	att	att	caa	cct	gat	gtc	aat	ggc	cat	5310
Val	Ser	Gly	Pro	Ala	Asp	Ile	Ile	Gln	Pro	Asp	Val	Asn	Gly	His	
1590						1595					1600				
ctg	tat	caa	ccg	gga	gat	att	gct	ggg	ttt	gta	act	ctt	cta	aat	5355

Leu	Tyr	Gln	Pro	Gly	Asp	Ile	Ala	Gly	Phe	Val	Thr	Leu	Leu	Asn	
1605						1610					1615				
aaa	tat	ata	gca	ggt	gaa	att	cat	atc	gaa	cat	gaa	aaa	att	cct	5400
Lys	Tyr	Ile	Ala	Gly	Glu	Ile	His	Ile	Glu	His	Glu	Lys	Ile	Pro	
1620						1625					1630				
gcg	tcg	atc	gat	gaa	ttt	tac	caa	tcg	aag	tat	tac	gat	aga	tta	5445
Ala	Ser	Ile	Asp	Glu	Phe	Tyr	Gln	Ser	Lys	Tyr	Tyr	Asp	Arg	Leu	
1635						1640					1645				
cat	aag	gta	att	att	tct	gct	att	tcc	cgg	agg	aaa	ta	atg	cag	5492
His	Lys	Val	Ile	Ile	Ser	Ala	Ile	Ser	Arg	Arg	Lys		Met	Gln	Gln
1650						1655					1660				
gtg	ttt	ttc	cag	gaa	act	gag	ttt	ctt	aat	tca	gtt	att	gat	tat	5537
Val	Phe	Phe	Gln	Glu	Thr	Glu	Phe	Leu	Asn	Ser	Val	Ile	Asp	Tyr	
1665						1670					1675				
gat	cat	aaa	gta	gaa	aca	gaa	aat	ctt	tgt	ctg	gac	atc	gct	tat	5582
Asp	His	Lys	Val	Glu	Thr	Glu	Asn	Leu	Cys	Leu	Asp	Ile	Ala	Tyr	
1680						1685					1690				
gga	act	gac	aaa	aac	ttt	cta	ttt	ggg	tgc	gga	att	tcg	att	gct	5627
Gly	Thr	Asp	Lys	Asn	Phe	Leu	Phe	Gly	Cys	Gly	Ile	Ser	Ile	Ala	
1695						1700					1705				
tca	ata	tta	aaa	tat	aat	gaa	gga	agt	cga	ttg	tgt	ttc	cat	att	5672
Ser	Ile	Leu	Lys	Tyr	Asn	Glu	Gly	Ser	Arg	Leu	Cys	Phe	His	Ile	
1710						1715					1720				
ttt	act	gat	tat	ttt	ggt	gat	gat	gat	cgt	aag	tat	ttt	gat	gcc	5717
Phe	Thr	Asp	Tyr	Phe	Gly	Asp	Asp	Asp	Arg	Lys	Tyr	Phe	Asp	Ala	
1725						1730					1735				
ctg	gcg	ttg	cag	tat	aaa	acc	aga	att	aaa	ata	tat	ctg	att	aat	5762
Leu	Ala	Leu	Gln	Tyr	Lys	Thr	Arg	Ile	Lys	Ile	Tyr	Leu	Ile	Asn	
1740						1745					1750				
ggt	gat	cga	ctg	cgc	tca	ttg	cct	agc	act	aag	aat	tgg	act	cat	5807
Gly	Asp	Arg	Leu	Arg	Ser	Leu	Pro	Ser	Thr	Lys	Asn	Trp	Thr	His	
1755						1760					1765				
gca	ata	tat	ttt	cgt	ttt	gtt	att	gca	gat	tac	ttt	att	aat	aag	5852
Ala	Ile	Tyr	Phe	Arg	Phe	Val	Ile	Ala	Asp	Tyr	Phe	Ile	Asn	Lys	
1770						1775					1780				
gcg	cct	aaa	gtc	ctt	tat	ctg	gat	gca	gat	atc	att	tgt	cag	ggg	5897
Ala	Pro	Lys	Val	Leu	Tyr	Leu	Asp	Ala	Asp	Ile	Ile	Cys	Gln	Gly	
1785						1790					1795				
act	att	gag	cca	cta	att	aat	ttc	tca	ttt	cct	gac	gat	aaa	gtc	5942
Thr	Ile	Glu	Pro	Leu	Ile	Asn	Phe	Ser	Phe	Pro	Asp	Asp	Lys	Val	
1800						1805					1810				
gca	atg	gtt	gtt	aca	gaa	ggg	caa	gct	gac	tgg	tgg	gaa	aaa	cgc	5987
Ala	Met	Val	Val	Thr	Glu	Gly	Gln	Ala	Asp	Trp	Trp	Glu	Lys	Arg	
1815						1820					1825				
gcc	cat	tcg	tta	ggt	gtt	gct	gga	att	gct	aaa	ggt	tac	ttt	aac	6032

Ala His Ser Leu Gly Val Ala	Gly Ile Ala Lys Gly	Tyr Phe Asn	
1830	1835	1840	
tcc ggt ttt tta ttg att aat	act gcc caa tgg gcg	gct cag cag	6077
Ser Gly Phe Leu Leu Ile Asn	Thr Ala Gln Trp Ala	Ala Gln Gln	
1845	1850	1855	
gtt tct gca cga gct att gca	atg cta aat gag cca	gaa ata atc	6122
Val Ser Ala Arg Ala Ile Ala	Met Leu Asn Glu Pro	Glu Ile Ile	
1860	1865	1870	
aaa aaa ata aca cat cct gat	cag gat gtg tta aat	atg ttg ctg	6167
Lys Lys Ile Thr His Pro Asp	Gln Asp Val Leu Asn	Met Leu Leu	
1875	1880	1885	
gcg gat aaa ctt att ttc gct	gat att aaa tat aac	acc cag ttc	6212
Ala Asp Lys Leu Ile Phe Ala	Asp Ile Lys Tyr Asn	Thr Gln Phe	
1890	1895	1900	
agc tta aat tat caa ctc aaa	gaa agc ttt ata aac	cca gta acc	6257
Ser Leu Asn Tyr Gln Leu Lys	Glu Ser Phe Ile Asn	Pro Val Thr	
1905	1910	1915	
aac gat act att ttt atc cat	tat atc ggg cca acc	aag ccc tgg	6302
Asn Asp Thr Ile Phe Ile His	Tyr Ile Gly Pro Thr	Lys Pro Trp	
1920	1925	1930	
cat gat tgg gcc tgg gat tat	cct gta tca caa gcc	ttt atg gag	6347
His Asp Trp Ala Trp Asp Tyr	Pro Val Ser Gln Ala	Phe Met Glu	
1935	1940	1945	
gca aaa aat gct tcg cca tgg	aag aat acg gcg ttg	ctg aaa ccg	6392
Ala Lys Asn Ala Ser Pro Trp	Lys Asn Thr Ala Leu	Leu Lys Pro	
1950	1955	1960	
aac aat agc aat caa tta aga	tat agc gca aaa cat	atg ctt aaa	6437
Asn Asn Ser Asn Gln Leu Arg	Tyr Ser Ala Lys His	Met Leu Lys	
1965	1970	1975	
aag cat aga tat cta aaa gga	ttt agc aac tat ctt	ttt tat ttt	6482
Lys His Arg Tyr Leu Lys Gly	Phe Ser Asn Tyr Leu	Phe Tyr Phe	
1980	1985	1990	
att gaa aag ata aag cat taa	aactggaaa ctataaagta	atgatataag	6533
Ile Glu Lys Ile Lys His			
1995			
ggtagcatt gtg gac tca ttt cct gcc	ata gag ata gat aaa	gtt aaa	6581
Val Asp Ser Phe Pro Ala	Ile Glu Ile Asp Lys	Val Lys	
2000	2005	2010	
gcc tgg gat ttt cggtt gct aat	ata aat act tct gaa	tgt tta	6626
Ala Trp Asp Phe Arg Leu Ala Asn	Ile Asn Thr Ser Glu	Cys Leu	
2015	2020	2025	
aat gtt gcc tat ggt gtc gat gct	aat tat ctt gat ggt	gta ggt	6671
Asn Val Ala Tyr Gly Val Asp Ala	Asn Tyr Leu Asp Gly	Val Gly	
2030	2035	2040	
gtt tcc atc aca tca att gtc cta	aat aat cga cat att	aat ctt	6716

Val	Ser	Ile	Thr	Ser	Ile	Val	Leu	Asn	Asn	Arg	His	Ile	Asn	Leu	
2045						2050						2055			
gat	ttt	tat	att	att	gct	gat	gtt	tat	aat	gat	ggt	ttt	ttt	caa	6761
Asp	Phe	Tyr	Ile	Ile	Ala	Asp	Val	Tyr	Asn	Asp	Gly	Phe	Phe	Gln	
2060						2065						2070			
aaa	att	gca	aag	ctt	gca	gag	caa	aac	caa	tta	aga	atc	acg	tta	6806
Lys	Ile	Ala	Lys	Leu	Ala	Glu	Gln	Asn	Gln	Leu	Arg	Ile	Thr	Leu	
2075						2080						2085			
tat	aga	att	aac	act	gat	aag	ctc	cag	tgc	ttg	cct	tgt	aca	cag	6851
Tyr	Arg	Ile	Asn	Thr	Asp	Lys	Leu	Gln	Cys	Leu	Pro	Cys	Thr	Gln	
2090						2095						2100			
gtc	tgg	tca	aga	gca	atg	tac	ttc	cgt	tta	ttt	gca	ttt	caa	tta	6896
Val	Trp	Ser	Arg	Ala	Met	Tyr	Phe	Arg	Leu	Phe	Ala	Phe	Gln	Leu	
2105						2110						2115			
ttg	ggt	tta	acg	ctt	gat	cgt	ttg	ctt	tat	ctt	gat	gca	gat	gtt	6941
Leu	Gly	Leu	Thr	Leu	Asp	Arg	Leu	Leu	Tyr	Leu	Asp	Ala	Asp	Val	
2120						2125						2130			
gtt	tgt	aaa	ggc	gat	att	agc	caa	cta	tta	cat	ctg	ggt	tta	aat	6986
Val	Cys	Lys	Gly	Asp	Ile	Ser	Gln	Leu	Leu	His	Leu	Gly	Leu	Asn	
2135						2140						2145			
gga	gco	gtt	gct	gct	gtt	aaa	gat	gtt	gag	cca	atg	caa	gaa		7031
Gly	Ala	Val	Ala	Ala	Val	Val	Lys	Asp	Val	Glu	Pro	Met	Gln	Glu	
2150						2155						2160			
aag	gco	gta	tcc	agg	ttg	tct	gat	cct	gaa	tta	ctt	ggg	cag	tac	7076
Lys	Ala	Val	Ser	Arg	Leu	Ser	Asp	Pro	Glu	Leu	Leu	Gly	Gln	Tyr	
2165						2170						2175			
ttt	aat	tcc	ggt	gtc	gtt	tat	tta	gac	tta	aaa	aaa	tgg	gct	gac	7121
Phe	Asn	Ser	Gly	Val	Val	Tyr	Leu	Asp	Leu	Lys	Lys	Trp	Ala	Asp	
2180						2185						2190			
gca	aaa	cta	aca	gaa	aaa	gco	ttg	tct	att	ctt	atg	agt	aaa	gat	7166
Ala	Lys	Leu	Thr	Glu	Lys	Ala	Leu	Ser	Ile	Leu	Met	Ser	Lys	Asp	
2195						2200						2205			
aat	gtt	tat	aaa	tac	cct	gat	cag	gat	gtt	atg	aat	gtc	tta	ctg	7211
Asn	Val	Tyr	Lys	Tyr	Pro	Asp	Gln	Asp	Val	Met	Asn	Val	Leu	Leu	
2210						2215						2220			
aaa	ggg	atg	aca	tta	ttt	ttg	cct	cgt	gag	tac	aat	aca	att	tat	7256
Lys	Gly	Met	Thr	Leu	Phe	Leu	Pro	Arg	Glu	Tyr	Asn	Thr	Ile	Tyr	
2225						2230						2235			
aca	att	aaa	agt	gaa	tta	aaa	gac	aaa	aca	cat	caa	aac	tat	aaa	7301
Thr	Ile	Lys	Ser	Glu	Leu	Lys	Asp	Lys	Thr	His	Gln	Asn	Tyr	Lys	
2240						2245						2250			
aag	ctg	att	aca	gaa	agt	act	ctt	ctt	att	cat	tat	aca	ggt	gca	7346
Lys	Leu	Ile	Thr	Glu	Ser	Thr	Leu	Leu	Ile	His	Tyr	Thr	Gly	Ala	
2255						2260						2265			
act	aaa	ccg	tgg	cac	aaa	tgg	gca	att	tat	cca	tcg	gta	aaa	tac	7391

Thr Lys Pro Trp His Lys Trp Ala Ile Tyr Pro Ser Val Lys Tyr			
2270	2275	2280	
tat aaa ata gct tta gaa aat tcc ccc tgg aaa gat gac tct cca			7436
Tyr Lys Ile Ala Leu Glu Asn Ser Pro Trp Lys Asp Asp Ser Pro			
2285	2290	2295	
cga gat gcg aaa tca att att gaa ttt aaa aaa gat ata aac atc			7481
Arg Asp Ala Lys Ser Ile Ile Glu Phe Lys Lys Asp Ile Asn Ile			
2300	2305	2310	
ttt tag tgcaacatca tt			7499
Phe			
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Met Arg Tyr His Gly Asp Met Leu Leu Thr Thr Pro Val Ile Ser Thr			
1	5	10	15
Leu Lys Gln Asn Tyr Pro Asp Ala Lys Ile Asp Met Leu Leu Tyr Gln			
20	25	30	
Asp Thr Ile Pro Ile Leu Ser Glu Asn Pro Glu Ile Asn Ala Leu Tyr			
35	40	45	
Gly Ile Ser Asn Lys Gly Ala Gly Thr Phe Asp Lys Ile Lys Asn Val			
50	55	60	
Leu Ser Leu Ile Lys Thr Leu Arg Ala Asn Asn Tyr Asp Leu Val Ile			
65	70	75	80
Asn Leu Thr Asp Gln Trp Met Val Ala Leu Leu Val Arg Cys Leu Pro			
85	90	95	
Ala Arg Met Lys Ile Ser Gln Leu Tyr Gly His Arg Gln His Gly Ile			
100	105	110	
Trp Lys Lys Ser Phe Thr His Leu Ala Pro Ile His Gly Thr His Ile			
115	120	125	
Val Glu Arg Asn Leu Ser Val Leu Glu Pro Leu Gly Ile Thr Asp Phe			
130	135	140	
Tyr Thr Asp Thr Thr Met Ser Tyr Ala Glu Asp Cys Trp Lys Lys Met			
145	150	155	160
Arg Arg Glu Leu Asp Ala Leu Gly Val Lys Asp His Tyr Val Val Ile			
165	170	175	

Gln Pro Thr Ala Arg Gln Ile Phe Lys Cys Trp Asp Asn Asp Lys Phe  
180 185 190

Ser Lys Val Ile Asp Ala Leu Gln Gln Arg Gly Tyr Gln Val Val Leu  
195 200 205

Thr Cys Gly Pro Ser Ala Asp Asp Leu Ala Cys Val Asp Glu Ile Ala  
210 215 220

Arg Gly Cys Glu Thr Lys Pro Ile Thr Gly Leu Ala Gly Lys Thr Arg  
225 230 235 240

Phe Pro Glu Leu Gly Ala Leu Ile Asp His Ala Val Leu Phe Ile Gly  
245 250 255

Val Asp Ser Ala Pro Gly His Ile Ala Ala Ala Val Lys Thr Pro Val  
260 265 270

Ile Ser Leu Phe Gly Ala Thr Asp His Val Phe Trp Arg Pro Trp Thr  
275 280 285

Glu Asn Ile Ile Gln Phe Trp Ala Gly Asn Tyr Gln Lys Met Pro Thr  
290 295 300

Arg His Glu Leu Asp Arg Asn Lys Lys Tyr Leu Ser Val Ile Pro Ala  
305 310 315 320

Glu Asp Val Ile Ala Ala Thr Glu Lys Leu Leu Pro Glu Asp Ala Pro  
325 330 335

Ser Ala Asp Arg Asn Ala Gln Leu  
340

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Ile Val Ala Phe Cys Leu Tyr Lys Tyr Phe Pro Phe Gly Gly Leu Gln  
1 5 10 15

Arg Asp Phe Met Arg Ile Ala Ser Thr Val Ala Ala Arg Gly His His  
20 25 30

Val Arg Val Tyr Thr Gln Ser Trp Glu Gly Asp Cys Pro Lys Ala Phe  
35 40 45

Glu Leu Ile Gln Val Pro Val Lys Ser His Thr Asn His Gly Arg Asn  
 50 55 60

Ala Glu Tyr Tyr Ala Trp Val Gln Asn His Leu Lys Glu His Pro Ala  
 65 70 75 80

Asp Arg Val Val Gly Phe Asn Lys Met Pro Gly Leu Asp Val Tyr Phe  
 85 90 95

Ala Ala Asp Val Cys Tyr Ala Glu Lys Val Ala Gln Glu Lys Gly Phe  
 100 105 110

Leu Tyr Arg Leu Thr Ser Arg Tyr Arg His Tyr Ala Ala Phe Glu Arg  
 115 120 125

Ala Thr Phe Glu Gln Gly Lys Ser Thr Lys Leu Met Met Leu Thr Asp  
 130 135 140

Lys Gln Ile Ala Asp Phe Gln Lys His Tyr Gln Thr Glu Pro Glu Arg  
 145 150 155 160

Phe Gln Ile Leu Pro Pro Gly Ile Tyr Pro Asp Arg Lys Tyr Ser Glu  
 165 170 175

Gln Ile Pro Asn Ser Arg Glu Ile Tyr Arg Gln Lys Asn Gly Ile Lys  
 180 185 190

Glu Gln Gln Asn Leu Leu Leu Gln Val Gly Ser Asp Phe Gly Arg Lys  
 195 200 205

Gly Val Asp Arg Ser Ile Glu Ala Leu Ala Ser Leu Pro Glu Ser Leu  
 210 215 220

Arg His Asn Thr Leu Leu Phe Val Val Gly Gln Asp Lys Pro Arg Lys  
 225 230 235 240

Phe Glu Ala Leu Ala Glu Lys Leu Gly Val Arg Ser Asn Val His Phe  
 245 250 255

Phe Ser Gly Arg Asn Asp Val Ser Glu Leu Met Ala Ala Ala Asp Leu  
 260 265 270

Leu Leu His Pro Ala Tyr Gln Glu Ala Ala Gly Ile Val Leu Leu Glu  
 275 280 285

Ala Ile Thr Ala Gly Leu Pro Val Leu Thr Thr Ala Val Cys Gly Tyr  
 290 295 300

Ala His Tyr Ile Ala Asp Ala Asn Cys Gly Thr Val Ile Ala Glu Pro  
 305 310 315 320

Phe Ser Gln Glu Gln Leu Asn Glu Val Leu Arg Lys Ala Leu Thr Gln  
 325 330 335

Ser Pro Leu Arg Met Ala Trp Ala Glu Asn Ala Arg His Tyr Ala Asp  
 340 345 350

Thr Gln Asp Leu Tyr Ser Leu Pro Glu Lys Ala Ala Asp Ile Ile Thr  
 355 360 365

Gly Gly Leu  
 370

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Met Val Glu Leu Lys Glu Pro Leu Ala Thr Leu Trp Arg Gly Lys Asp  
 1 5 10 15

Ala Phe Ala Glu Val Lys Lys Leu Asn Gly Glu Val Phe Arg Glu Leu  
 20 25 30

Glu Thr Arg Arg Thr Leu Arg Phe Glu Leu Ser Gly Lys Ser Tyr Phe  
 35 40 45

Leu Lys Trp His Lys Gly Thr Thr Leu Lys Glu Ile Ile Lys Asn Leu  
 50 55 60

Leu Ser Leu Arg Met Pro Val Leu Gly Ala Asp Arg Glu Trp His Ala  
 65 70 75 80

Ile His Arg Leu Ser Asp Val Gly Val Asp Thr Met Lys Gly Ile Gly  
 85 90 95

Phe Gly Glu Lys Gly Leu Asn Pro Leu Thr Arg Ala Ser Phe Ile Ile  
 100 105 110

Thr Glu Asp Leu Thr Pro Thr Ile Ser Leu Glu Asp Tyr Cys Ala Asp  
 115 120 125

Trp Ala Val Asn Pro Pro Asp Ile Arg Val Lys Arg Met Leu Ile Ala  
 130 135 140

Arg Val Ala Thr Met Val Arg Lys Met His Thr Ala Gly Ile Asn His  
 145 150 155 160

Arg Asp Cys Tyr Ile Cys His Phe Leu Leu His Leu Pro Phe Thr Gly  
 165 170 175

Arg Glu Asp Glu Leu Lys Ile Ser Val Ile Asp Leu His Arg Ala Gln  
 180 185 190

Ile Arg Ala Lys Val Pro Arg Arg Trp Arg Asp Lys Asp Leu Ile Gly  
 195 200 205

Leu Tyr Phe Ser Ser Met Asn Ile Gly Leu Thr Gln Arg Asp Ile Trp  
 210 215 220

Arg Phe Met Lys Val Tyr Phe Gly Met Pro Leu Arg Lys Ile Leu Ser  
 225 230 235 240

Leu Glu Gln Asn Leu Leu Asn Met Ala Ser Val Lys Ala Glu Arg Ile  
 245 250 255

Lys Glu Arg Thr Gln Arg Lys Gly Leu  
 260 265

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Met Thr Ile Tyr Phe Ile Asn Trp Val Ala Asp Tyr Glu Leu Lys Met  
 1 5 10 15

Ile Gln Tyr Leu Lys Lys Tyr Lys Ile Lys Asn Ile Thr Thr Pro  
 20 25 30

Lys Lys Tyr Asn Trp Ile Asn Lys Lys Ile Ser Lys Ile Gly Met Asp  
 35 40 45

Asn Ala Trp Leu Gly Arg Leu Phe Ile Lys His Tyr Leu Asn Asp Ile  
 50 55 60

Lys Lys Asp Asp Ile Ile Ile Asn Asp Ser Val Val Asn Lys Gly  
 65 70 75 80

Ile Asn Lys Gln Ile Leu Lys Asn Ile Asn Cys His Lys Val Leu Leu  
 85 90 95

Leu Arg Asn Thr Val Gly Glu Asp Phe Ile Leu Asp Asn Ala Asn Tyr  
100 105 110

Phe Asp Ile Ile Tyr Asp Phe Glu His Arg Phe Ile Gly Asn Glu Lys  
115 120 125

Ile Lys Ala Ile Glu Gln Phe Phe Pro Ile Gly Met Asp Glu Ile Arg  
130 135 140

Asn Tyr Ser Leu Ser Asp Lys Asn Asn Ser Gln Pro Ile Cys Phe Phe  
145 150 155 160

Leu Gly Arg Asp Lys Gly Arg Leu Gln Ile Ile Asn Glu Leu Ala Glu  
165 170 175

Arg Leu Thr Thr Leu Gly Cys Lys Leu Asp Phe Asn Val Val Lys Asp  
180 185 190

Lys Thr Ser Ser Thr Ser Lys Tyr Leu Ile Glu Lys Gln Ile Ser  
195 200 205

Tyr Glu Glu Asn Ile Arg Arg Thr Leu Asn Ala Asn Ile Ile Val Asp  
210 215 220

Ile Thr Lys Glu Asn Gln Ser Gly Trp Thr Leu Arg Ile Leu Glu Ala  
225 230 235 240

Leu Phe Phe Asn Lys Lys Leu Ile Thr Asn Asn Ile Asn Val Phe Gly  
245 250 255

Ser Glu Ile Tyr Ser Glu Ser Arg Phe Phe Ile Ile Gly His Asp Asp  
260 265 270

Trp Asp Lys Leu Glu Tyr Phe Ile Asn Ser Ser Val Lys Pro Met Asp  
275 280 285

Tyr Asp Ser Leu Tyr Lys Phe Ser Pro Asp Lys Met Met Ser Thr Ile  
290 295 300

Val Ser Asp Phe Ile Asp Lys  
305 310

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Val Ser Phe Thr Gln Leu Met Arg Val Ser Met Lys Ile Ala Phe Ile  
1 5 10 15

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Gly Glu Ala Val Ser Gly Phe Gly Gly Met Glu Thr Val Ile Arg Asp  
 20 25 30

Val Ile Thr Thr Phe Arg Gln Gln His Ile Gln Ser Glu Met Phe Phe  
 35 40 45

Phe Cys Arg Asn Asp Lys Met Asp Lys Gly Trp Leu Glu Gly Ile Lys  
 50 55 60

Tyr Ser Cys Ser Phe Ser Asn Ile Arg Leu Gly Phe Leu Arg Arg Ala  
 65 70 75 80

Lys His Ile His Ala Leu Ser Lys Trp Leu Gln Glu Tyr Gln Pro Asp  
 85 90 95

Ile Val Ile Cys Ile Asp Val Ile Ser Cys Leu Phe Ala Ala Lys Ala  
 100 105 110

Arg Lys Lys Ser Gly Ile Asp Met Pro Val Phe Ser Trp Pro His Phe  
 115 120 125

Ser Leu Asp His Lys Lys His Ala Glu Tyr Ile Thr Cys Ala Asp Tyr  
 130 135 140

His Leu Ala Ile Ser Ser Gly Ile Lys Gln Gln Met Ile Asn Arg Gly  
 145 150 155 160

Val Ala Glu Ser Thr Ile Asn Val Ile Phe Asn Pro Val Glu Thr Lys  
 165 170 175

Asp Ser Val Ile Pro Ala Pro Glu Glu Gly Glu Thr Ala Thr Phe Ile  
 180 185 190

Tyr Val Gly Arg Met Lys Phe Glu Gly Gln Lys Arg Val Lys Asp Leu  
 195 200 205

Leu Asp Gly Leu Ser Gln Ala Lys Gly Asn Trp Lys Leu His Val Leu  
 210 215 220

Gly Asp Gly Ser Asp Phe Glu Lys Cys Gln Ala Tyr Gly Arg Glu Leu  
 225 230 235 240

Asn Ile Asp Asp Arg Ile Val Trp Tyr Gly Trp Gln Gln Tyr Pro Trp  
 245 250 255

Glu Leu Val Gln Gln Asp Ile Glu Lys Val Ser Ala Leu Leu Thr  
 260 265 270

Ser Ser Phe Glu Gly Phe Pro Met Thr Leu Leu Glu Ala Leu Ser Trp  
 275 280 285

Gly Ile Pro Cys Ile Ser Ala Asp Cys Val Ser Gly Pro Ala Asp Ile  
 290 295 300

Ile Gln Pro Asp Val Asn Gly His Leu Tyr Gln Pro Gly Asp Ile Ala  
 305 310 315 320

Gly Phe Val Thr Leu Leu Asn Lys Tyr Ile Ala Gly Glu Ile His Ile  
 325 330 335

Glu His Glu Lys Ile Pro Ala Ser Ile Asp Glu Phe Tyr Gln Ser Lys  
 340 345 350

Tyr Tyr Asp Arg Leu His Lys Val Ile Ile Ser Ala Ile Ser Arg Arg  
 355 360 365

Lys

<210> 111 <211> 339 <212> PRT <213> Escherichia coli <400> 111  
 Met Gln Gln Val Phe Phe Gln Glu Thr Glu Phe Leu Asn Ser Val Ile  
 1 5 10 15

Asp Tyr Asp His Lys Val Glu Thr Glu Asn Leu Cys Leu Asp Ile Ala  
 20 25 30

Tyr Gly Thr Asp Lys Asn Phe Leu Phe Gly Cys Gly Ile Ser Ile Ala  
 35 40 45

Ser Ile Leu Lys Tyr Asn Glu Gly Ser Arg Leu Cys Phe His Ile Phe  
 50 55 60

Thr Asp Tyr Phe Gly Asp Asp Arg Lys Tyr Phe Asp Ala Leu Ala  
 65 70 75 80

Leu Gln Tyr Lys Thr Arg Ile Lys Ile Tyr Leu Ile Asn Gly Asp Arg  
 85 90 95

Leu Arg Ser Leu Pro Ser Thr Lys Asn Trp Thr His Ala Ile Tyr Phe  
100 105 110

Arg Phe Val Ile Ala Asp Tyr Phe Ile Asn Lys Ala Pro Lys Val Leu  
115 120 125

Tyr Leu Asp Ala Asp Ile Ile Cys Gln Gly Thr Ile Glu Pro Leu Ile  
130 135 140

Asn Phe Ser Phe Pro Asp Asp Lys Val Ala Met Val Val Thr Glu Gly  
145 150 155 160

Gln Ala Asp Trp Trp Glu Lys Arg Ala His Ser Leu Gly Val Ala Gly  
165 170 175

Ile Ala Lys Gly Tyr Phe Asn Ser Gly Phe Leu Leu Ile Asn Thr Ala  
180 185 190

Gln Trp Ala Ala Gln Gln Val Ser Ala Arg Ala Ile Ala Met Leu Asn  
195 200 205

Glu Pro Glu Ile Ile Lys Lys Ile Thr His Pro Asp Gln Asp Val Leu  
210 215 220

Asn Met Leu Leu Ala Asp Lys Leu Ile Phe Ala Asp Ile Lys Tyr Asn  
225 230 235 240

Thr Gln Phe Ser Leu Asn Tyr Gln Leu Lys Glu Ser Phe Ile Asn Pro  
245 250 255

Val Thr Asn Asp Thr Ile Phe Ile His Tyr Ile Gly Pro Thr Lys Pro  
260 265 270

Trp His Asp Trp Ala Trp Asp Tyr Pro Val Ser Gln Ala Phe Met Glu  
275 280 285

Ala Lys Asn Ala Ser Pro Trp Lys Asn Thr Ala Leu Leu Lys Pro Asn  
290 295 300

Asn Ser Asn Gln Leu Arg Tyr Ser Ala Lys His Met Leu Lys Lys His  
305 310 315 320

Arg Tyr Leu Lys Gly Phe Ser Asn Tyr Leu Phe Tyr Phe Ile Glu Lys  
325 330 335

Ile Lys His

<210> 112 <211> 314 <212> PRT <213> Escherichia coli <400> 112

Val Asp Ser Phe Pro Ala Ile Glu Ile Asp Lys Val Lys Ala Trp Asp  
1 5 10 15

Phe Arg Leu Ala Asn Ile Asn Thr Ser Glu Cys Leu Asn Val Ala Tyr  
20 25 30

Gly Val Asp Ala Asn Tyr Leu Asp Gly Val Gly Val Ser Ile Thr Ser  
35 40 45

Ile Val Leu Asn Asn Arg His Ile Asn Leu Asp Phe Tyr Ile Ile Ala  
50 55 60

Asp Val Tyr Asn Asp Gly Phe Phe Gln Lys Ile Ala Lys Leu Ala Glu  
65 70 75 80

Gln Asn Gln Leu Arg Ile Thr Leu Tyr Arg Ile Asn Thr Asp Lys Leu  
85 90 95

Gln Cys Leu Pro Cys Thr Gln Val Trp Ser Arg Ala Met Tyr Phe Arg  
100 105 110

Leu Phe Ala Phe Gln Leu Leu Gly Leu Thr Leu Asp Arg Leu Leu Tyr  
115 120 125

Leu Asp Ala Asp Val Val Cys Lys Gly Asp Ile Ser Gln Leu Leu His  
130 135 140

Leu Gly Leu Asn Gly Ala Val Ala Ala Val Val Lys Asp Val Glu Pro  
145 150 155 160

Met Gln Glu Lys Ala Val Ser Arg Leu Ser Asp Pro Glu Leu Leu Gly  
165 170 175

Gln Tyr Phe Asn Ser Gly Val Val Tyr Leu Asp Leu Lys Lys Trp Ala  
180 185 190

Asp Ala Lys Leu Thr Glu Lys Ala Leu Ser Ile Leu Met Ser Lys Asp  
195 200 205

Asn Val Tyr Lys Tyr Pro Asp Gln Asp Val Met Asn Val Leu Leu Lys  
210 215 220

Gly Met Thr Leu Phe Leu Pro Arg Glu Tyr Asn Thr Ile Tyr Thr Ile  
 225 230 235 240

Lys Ser Glu Leu Lys Asp Lys Thr His Gln Asn Tyr Lys Lys Leu Ile  
 245 250 255

Thr Glu Ser Thr Leu Leu Ile His Tyr Thr Gly Ala Thr Lys Pro Trp  
 260 265 270

His Lys Trp Ala Ile Tyr Pro Ser Val Lys Tyr Tyr Lys Ile Ala Leu  
 275 280 285

Glu Asn Ser Pro Trp Lys Asp Asp Ser Pro Arg Asp Ala Lys Ser Ile  
 290 295 300

Ile Glu Phe Lys Lys Asp Ile Asn Ile Phe  
 305 310

<210> 113 <211> 8391 <212> DNA <213> Mycobacterium bovis <220>  
<221> CDS <222> (1)..(8391) <223>

<code>&lt;400&gt; 113</code> <code>atg ggt acg cgc act ggc ggc cga gga ccc ggt tcc gtc cga caa gca</code> <code>Met Gly Thr Arg Thr Gly Arg Gly Pro Gly Ser Val Arg Gln Ala</code> <code>1 5 10 15</code>	48
<code>cct gac gtc ggc cgc cgt gtc ggt gcc cgg cgt gtt gct tac cca gat</code> <code>Pro Asp Val Gly Arg Arg Val Gly Ala Arg Arg Val Ala Tyr Pro Asp</code> <code>20 25 30</code>	96
<code>cgc ggc gac ccg ggc gct ggc ccg tca agg cat gga cct cgt ggc cac</code> <code>Arg Gly Asp Pro Gly Ala Gly Pro Ser Arg His Gly Pro Arg Gly His</code> <code>35 40 45</code>	144
<code>ccc gcc ggt cgc cat ggc ggg cat tcg caa ggt gtg ctg gcg gtg gaa</code> <code>Pro Ala Gly Arg His Gly His Ser Gln Gly Val Leu Ala Val Glu</code> <code>50 55 60</code>	192
<code>gcc ctc aag gct ggt ggg gca cgc gac gtc gag ctg ttt gcc ttg gcc</code> <code>Ala Leu Lys Ala Gly Gly Ala Arg Asp Val Glu Leu Phe Ala Leu Ala</code> <code>65 70 75 80</code>	240
<code>cag ttg atc ggt gcc gga acg ctg gtg gcc cgc cgg cgc gaa ttt</code> <code>Gln Leu Ile Gly Ala Ala Gly Thr Leu Val Ala Arg Arg Glu Phe</code> <code>85 90 95</code>	288
<code>ccg tcc tgg gcg atc gcg ccg atg gta tcg gtc acc aac gcc gac ccc</code> <code>Pro Ser Trp Ala Ile Ala Pro Met Val Ser Val Thr Asn Ala Asp Pro</code> <code>100 105 110</code>	336
<code>gag cgc atc ggc cgg ttg ctc gac gag ttc gcc cag gac gtg cgc acg</code> <code>Glu Arg Ile Gly Arg Leu Leu Asp Glu Phe Ala Gln Asp Val Arg Thr</code>	384

115	120	125	
gtg ctg cca ccg gtg ttg tcc atc cgc aac ggc cg <sup>g</sup> cgt gcc gtc gtc Val Leu Pro Pro Val Leu Ser Ile Arg Asn Gly Arg Arg Ala Val Val			432
130	135	140	
atc acc ggc acc ccc gag cag ctg tcg cgt ttc gag ctt tat tgc cgc Ile Thr Gly Thr Pro Glu Gln Leu Ser Arg Phe Glu Leu Tyr Cys Arg			480
145	150	155	160
cag atc tcc gag aag gaa gac cgc aag aac aag gtc cgc ggc Gln Ile Ser Glu Lys Glu Ala Asp Arg Lys Asn Lys Val Arg Gly			528
165	170		175
ggc gac gtc ttc tcg ccg gtc ttc gag ccg gtg cag gtc gag gtc ggc Gly Asp Val Phe Ser Pro Val Phe Glu Pro Val Gln Val Glu Val Gly			576
180	185		190
ttt cac acc ccg cgg cta tcc gac ggg atc gac atc gtc gc <sup>g</sup> ggc tgg Phe His Thr Pro Arg Leu Ser Asp Gly Ile Asp Ile Val Ala Gly Trp			624
195	200	205	
gcc gag aag gc <sup>g</sup> ggc ctc gat gtc gcc ttg gct cgg gag ctg gcc gat Ala Glu Lys Ala Gly Leu Asp Val Ala Leu Ala Arg Glu Leu Ala Asp			672
210	215	220	
gcc atc ttg atc aga aag gtc gac tgg gtc gac gag atc acc cgt gtc Ala Ile Leu Ile Arg Lys Val Asp Trp Val Asp Glu Ile Thr Arg Val			720
225	230	235	240
cac cgg gcc ggc gcc cgc tgg atc ctc gac ctg ggg ccg ggc gac atc His Arg Ala Gly Ala Arg Trp Ile Leu Asp Leu Gly Pro Gly Asp Ile			768
245	250		255
ctg acc cga ctg acc gca ccg gtg atc cgc ggc ctg ggc atc ggc atc Leu Thr Arg Leu Thr Ala Pro Val Ile Arg Gly Leu Gly Ile Gly Ile			816
260	265	270	
gtg ccg gc <sup>g</sup> cgt acc cgc ggt ggc cag cgc aac ctg ttc acc gtc ggc Val Pro Ala Arg Thr Arg Gly Gly Gln Arg Asn Leu Phe Thr Val Gly			864
275	280	285	
gcc acc ccc gag gtt gcc ccg gcc tgg tcg agc tac gca ccg acc gtc Ala Thr Pro Glu Val Ala Arg Ala Trp Ser Ser Tyr Ala Pro Thr Val			912
290	295	300	
gtt cgc ctc ccc gac ggc agg gtc aag ctc tcg acg aag ttc acc cgg Val Arg Leu Pro Asp Gly Arg Val Lys Leu Ser Thr Lys Phe Thr Arg			960
305	310	315	320
ctg acc cgc cgc tcg ccg atc ctg ctc gcg ggc atg acc ccg acc acc Leu Thr Arg Arg Ser Pro Ile Leu Leu Ala Gly Met Thr Pro Thr Thr			1008
325	330		335
gtg gac gcc aag atc gtc gcc gc <sup>g</sup> ggc aac ggc cg <sup>g</sup> cac tgg gcc Val Asp Ala Lys Ile Val Ala Ala Ala Asn Gly Arg His Trp Ala			1056
340	345		350
gag ctg gc <sup>g</sup> gc <sup>g</sup> ccg ggc agg tca ccg aag aga tct tcg gta acc gca Glu Leu Ala Ala Arg Gly Arg Ser Pro Lys Arg Ser Ser Val Thr Ala			1104

355	360	365	
tcg aac aaa tgg ccg gcc tgc tcg agc cgg gcc gca cct atc agt tca Ser Asn Lys Trp Pro Ala Cys Ser Ser Arg Ala Ala Pro Ile Ser Ser 370	375	380	1152
acg cgc tgt tcc tcg atc cct acc tgt gaa gct tca ggt ggg cgg caa Thr Arg Cys Ser Ser Ile Pro Thr Cys Glu Ala Ser Gly Gly Arg Gln 385	390	395	1200
gct gtt ggt gca gaa ggc ccg cca gtc cgg cgc gat cga cgg cgt Ala Val Gly Ala Glu Gly Pro Pro Val Arg Arg Arg Asp Arg Arg 405	410	415	1248
ggt gat cag cgc cgg cat ccc aga cct cga cga ggc cgt cga gct gat Gly Asp Gln Arg Arg His Pro Arg Pro Arg Arg Gly Arg Arg Ala Asp 420	425	430	1296
cga cga act ggg cga cat cgg cat cag cca cgt cgt gtt caa acc cgg Arg Arg Thr Gly Arg His Arg His Gln Pro Arg Arg Val Gln Thr Arg 435	440	445	1344
gac cat cga gca gat ccg ctc ggt gat tcg cat cgc cac cga ggt gcc Asp His Arg Ala Asp Pro Leu Gly Asp Ser His Arg His Arg Gly Ala 450	455	460	1392
cac caa gcc ggt gat cat gca cgt cga ggg ccg ggc gcg ccg ggc His Gln Ala Gly Asp His Ala Arg Arg Gly Pro Gly Ala Pro Ala Gly 465	470	475	1440
acc att cct ggg agg atc tca cac ctg ctg ctg gct acc tac tcg gca Thr Ile Pro Gly Arg Ile Ser His Leu Leu Leu Ala Thr Tyr Ser Ala 485	490	495	1488
gat cgg gca ccg cgc caa cat cac gtg tgc gtc ggc ggc cat ctc Asp Arg Ala Pro Arg Gln His His Val Cys Val Gly Gly His Leu 500	505	510	1536
ggc acc ccg aag aag ggc tgc gga tat ttg tcc ggg cct ggg cgc agc Gly Thr Pro Lys Lys Gly Cys Gly Tyr Leu Ser Gly Pro Gly Arg Ser 515	520	525	1584
gta cgg ctt ccc att gat gcc gat cga cgc atc ctg gtc ggc acc gcg Val Arg Leu Pro Ile Asp Ala Asp Arg Arg Ile Leu Val Gly Thr Ala 530	535	540	1632
gcg atg gcc acc aag gaa tcc acc acg tcg cca tcg gtc aag cgg atg Ala Met Ala Thr Lys Glu Ser Thr Ser Pro Ser Val Lys Arg Met 545	550	555	1680
ctc gtc gac act cag ggc acc gac caa tgg atc agc gcc gga aaa gcg Leu Val Asp Thr Gln Gly Thr Asp Gln Trp Ile Ser Ala Gly Lys Ala 565	570	575	1728
cag ggc cgc atg cct cca gcc gag tca gct cgg tgc cga cat cca cga Gln Gly Arg Met Pro Pro Ala Glu Ser Ala Arg Cys Arg His Pro Arg 580	585	590	1776
gat cga cac agc gca tcc gtg cgg cgc tgc tcg acg agg tgg ccg gtg Asp Arg His Ser Ala Ser Val Arg Arg Cys Ser Thr Arg Trp Pro Val 595			1824

595	600	605	
acg cgg agg cg <sup>g</sup> tcg cg <sup>g</sup> agc gtc gca tgg cca aga ccg cca agc cct Thr Arg Arg Arg Ser Arg Ser Val Ala Trp Pro Arg Pro Pro Ser Pro 610	615	620	1872
act tgc cga cgt cg <sup>c</sup> cga cat gac cta cct gca gtg gct gcg ggc gct Thr Cys Arg Arg Arg His Asp Leu Pro Ala Val Ala Ala Gly Ala 625	630	635	1920
acg tcg aac tgg cca tcg ggg aag gca act cga ccg ccg aca ccg cct Thr Ser Asn Trp Pro Ser Gly Lys Ala Thr Arg Pro Pro Thr Pro Pro 645	650	655	1968
cg <sup>g</sup> tgg gca gcc cgt ggc tgg ccg aca ctg gcg gga ccg ctt cga gca Arg Trp Ala Ala Arg Gly Trp Pro Thr Leu Ala Gly Pro Leu Arg Ala 660	665	670	2016
gat gct gca gc <sup>g</sup> tgc cga agc ccg gtt gca ccc aca gga ttt cg <sup>g</sup> ccc Asp Ala Ala Ala Cys Arg Ser Pro Val Ala Pro Thr Gly Phe Arg Pro 675	680	685	2064
gat cca gac gct att cac cga tgc tgg cct gct gga caa tcc gca gca Asp Pro Asp Ala Ile His Arg Cys Trp Pro Ala Gly Gln Ser Ala Ala 690	695	700	2112
gc <sup>g</sup> atc gcc gcc ctc gtg gc <sup>g</sup> cgc tac ccc gac gcc gag acc gtg cag Ala Ile Ala Ala Leu Val Ala Arg Tyr Pro Asp Ala Glu Thr Val Gln 705	710	715	2160
ttg cat ccc gc <sup>g</sup> gat gtg ccc ttt ttc gtg acg ttg tgc aag acg ctg Leu His Pro Ala Asp Val Pro Phe Val Thr Leu Cys Lys Thr Leu 725	730	735	2208
ggc aag ccg gtc aac ttc gtg ccg gc <sup>g</sup> atc gac ctc gtc gtg cgc gct Gly Lys Pro Val Asn Phe Val Pro Ala Ile Asp Leu Val Val Arg Ala 740	745	750	2256
ggt ggc gca gc <sup>g</sup> act cgc tgt ggc agg ccc acg acg ccc gct acg acg Gly Gly Ala Ala Thr Arg Cys Gly Arg Pro Thr Thr Pro Ala Thr Thr 755	760	765	2304
ccg atg cgg tgt gca tca ttc cgg gca cgc gtc ggt agc cgc atc acc Pro Met Arg Cys Ala Ser Phe Arg Ala Arg Val Gly Ser Arg Ile Thr 770	775	780	2352
cg <sup>g</sup> atg gat gaa ccc gtc ggt gag ttg ctg gac gct ttc gag caa gcc Arg Met Asp Glu Pro Val Gly Glu Leu Leu Asp Ala Phe Glu Gln Ala 785	790	795	2400
gca atc gat gaa gtg ctc ggc gcc ggt gtc gag ccg aag gat gtc gc <sup>g</sup> Ala Ile Asp Glu Val Leu Gly Ala Gly Val Glu Pro Lys Asp Val Ala 805	810	815	2448
tcc ggc cgg ctg ggc cg <sup>g</sup> gcc gac gtg gcc gga ccg ttg gct gtc gtc Ser Gly Arg Leu Gly Arg Ala Asp Val Ala Gly Pro Leu Ala Val Val 820	825	830	2496
ctc gac gca ccc gat gtg cgc tgg gcc ggt cgc acc gtg acc aac ccg Leu Asp Ala Pro Asp Val Arg Trp Ala Gly Arg Thr Val Thr Asn Pro			2544

835	840	845	
gtg cat cgg atc cgc gac ccg gcc gaa tgg cag gtg cac gat gga ccc Val His Arg Ile Arg Asp Pro Ala Glu Trp Gln Val His Asp Gly Pro 850	855	860	2592
gaa aac ccg cgc gcc gca cac tca tcc acc ggc gcc cggt cag acg Glu Asn Pro Arg Ala Ala His Ser Ser Thr Gly Ala Arg Leu Gln Thr 865	870	875	2640
cac ggc gac gac gtc gcc ttg agc gtc gcg cgt ctc ggg cac ctg ggt His Gly Asp Asp Val Ala Leu Ser Val Ala Arg Leu Gly His Leu Gly 885	890	895	2688
cga cat ccg att cac gtt gcc ggc caa cac cgt cga tgg cgg cac ccc Arg His Pro Ile His Val Ala Gly Gln His Arg Arg Trp Arg His Pro 900	905	910	2736
ggt gat cgc cac cga gga cgc cac cac gcc atg cgc acg gtg ctg cga Gly Asp Arg His Arg Gly Arg His His Ala Met Arg Thr Val Leu Arg 915	920	925	2784
tcg ccg ccg gtg tcg aca gcc cggt tct tgc tgc ggt ggc caa cgg Ser Pro Pro Val Ser Thr Ala Arg Ser Ser Cys Cys Gly Gly Gln Arg 930	935	940	2832
gac ggc cac ttt gac ggt gga ctg gca ccc cga gcg tgg tgc cga cca Asp Gly His Phe Asp Gly Leu Ala Pro Arg Ala Cys Cys Arg Pro 945	950	955	2880
cac cgt cac cgc cac gtt cgg tgc gcg ctg gca ccc agc ctc acc aac His Arg His Val Arg Cys Ala Leu Ala Pro Ser Leu Thr Asn 965	970	975	2928
gtg ccg acg cga ctc gtc ggc cct tgg cca gcg gtt ttc gcg gcc Val Pro Thr Arg Leu Val Gly Pro Cys Trp Pro Ala Val Phe Ala Ala 980	985	990	2976
atc gga tcg gcg gtc acc gac acc ggt gag ccg gtg gtg gaa ggc ctg Ile Gly Ser Ala Val Thr Asp Thr Gly Glu Pro Val Val Glu Gly Leu 995	1000	1005	3024
ctg agc ctg gtg cat ctg gac acg cgg ccg cgc gtg gtc ggt cag Leu Ser Leu Val His Leu Asp Thr Arg Pro Arg Val Val Gly Gln 1010	1015	1020	3069
ctg ccc acg gtc ccg gcc caa ttg acc gtc acg caa cgg ctg cca Leu Pro Thr Val Pro Ala Gln Leu Thr Val Thr Gln Arg Leu Pro 1025	1030	1035	3114
acg caa ccg ata cgg aca tgg gcc gcg tcg tgc cgg tct cgg tcg Thr Gln Pro Ile Arg Thr Trp Ala Ala Ser Cys Arg Ser Arg Ser 1040	1045	1050	3159
tcg ttc acc gca tgg cgc cgt gat cgc cac tct cga gga gcg att Ser Phe Thr Ala Trp Arg Arg Asp Arg His Ser Arg Gly Ala Ile 1055	1060	1065	3204
cgc gat cct ggg tcg cac cgg ttc gcc gag ctg gac cgg cgc gag Arg Asp Pro Gly Ser His Arg Phe Ala Glu Leu Asp Arg Arg Glu			3249

1070	1075	1080	
ccg gtg gcg cgg tgt cgc gaa Pro Val Ala Arg Cys Arg Glu 1085	cgc cac cga cac ccc Arg His Arg His Pro Ala Arg Arg 1090	gcg cgt cgc 1095	3294
cgc cgc gac gtc acg atc acc Arg Arg Asp Val Thr Ile Thr 1100	gcg ccg gtc gac atg Ala Pro Val Asp Met Arg Pro Phe 1105	cgc ccg ttc 1110	3339
gcf gtg gtg tcc ggc gac cac Ala Val Val Ser Gly Asp His 1115	aac ccc att cac acc Asn Pro Ile His Thr Asp Arg Ala 1120	gac cgg gcc 1125	3384
gcc gct gct tgc cgg cct gga Ala Ala Ala Cys Arg Pro Gly 1130	gtc gcc gat cgt gca Val Ala Asp Arg Ala Arg His Val 1135	cgg cat gtg 1140	3429
gct gtc ggc cgc ggc gca aca Ala Val Gly Arg Gly Ala Thr 1145	cgc ggt gac cgg cac Arg Gly Asp Arg His Arg Arg Ala 1150	cga cgg gca 1155	3474
ggc ccg cca ccg gcc cgg ctg Gly Pro Pro Pro Ala Arg Leu 1160	gtc ggc tgg acc gcg Val Gly Trp Thr Ala Arg Phe Leu 1165	cgg ttt ttg 1170	3519
ggc atg gtg gcc ccg gcg acg Gly Met Val Ala Pro Ala Thr 1175	agg tgg act tcc ggt Arg Trp Thr Ser Gly Arg Ala Arg 1180	cga gcg cgt 1185	3564
cgf atc gac cag ggc gca gag Arg Ile Asp Gln Gly Ala Glu 1190	att gtg gac gtg gcc Ile Val Asp Val Ala Ala Arg Val 1195	gcf cgc gtc 1200	3609
ggg tcg gat cta gtg atg tcg Gly Ser Asp Leu Val Met Ser 1205	gcc tcc gcg cga ctg Ala Ser Ala Arg Leu Ala Ala Pro 1210	gcc gca ccc 1215	3654
aag acg gtc tac gca ttc ccc Lys Thr Val Tyr Ala Phe Pro 1220	ggc cag ggc atc caa Gly Gln Gly Ile Gln His Lys Gly 1225	cac aag ggc 1230	3699
atg ggc atg gag gtg cgc gcc Met Gly Met Glu Val Arg Ala 1235	gct cca agg cgg ccc Ala Pro Arg Arg Pro Ala Arg Cys 1240	gca agg tgt 1245	3744
ggg aca ccg cgg aca agt tca Gly Thr Pro Arg Thr Ser Ser 1250	ccc gcg aca ccc tgg Pro Ala Thr Pro Trp Ala Ser Arg 1255	gct tct cgg 1260	3789
tac tgc acg tgg tcc gcg aca Tyr Cys Thr Trp Ser Ala Thr 1265	acc cga cca gca tca Thr Arg Pro Ala Ser Ser Pro Ala 1270	tcg cca gcg 1275	3834
gtg tgc act acc acc acc gac Val Cys Thr Thr Thr Asp 1280	ggg gtg ctc tac ctg Gly Val Leu Tyr Leu Thr Gln Phe 1285	acg cag ttc 1290	3879
acc cag gtc gcg atg gcg acg Thr Gln Val Ala Met Ala Thr	gtg gcg gcc ggg cag Val Ala Ala Gly Gln Val Ala Glu	gtc gcc gag Val Ala Glu	3924

1295	1300	1305	
atg cgt gaa cag gga gcc ttc	gtc gaa ggc gcc atc	gcg tgc ggc	3969
Met Arg Glu Gln Gly Ala Phe	Val Glu Gly Ala Ile	Ala Cys Gly	
1310	1315	1320	
cac tcg gtc ggc gag tac acc	gcg ctg gcc tgc gtg	acc ggc atc	4014
His Ser Val Gly Glu Tyr Thr	Ala Leu Ala Cys Val	Thr Gly Ile	
1325	1330	1335	
tac caa ctg gaa gcc ttg ctg	gag atg gtg ttt cac	cgc ggg tcg	4059
Tyr Gln Leu Glu Ala Leu Leu	Glu Met Val Phe His	Arg Gly Ser	
1340	1345	1350	
aag atg cac gac atc gtt ccg	cgc gac gag ctc ggc	cgc tcc aac	4104
Lys Met His Asp Ile Val Pro	Arg Asp Glu Leu Gly	Arg Ser Asn	
1355	1360	1365	
tat cgg ctg tcg gcc atc cg	ccg tcc cag atc gac	ctc gac gac	4149
Tyr Arg Leu Ser Ala Ile Arg	Pro Ser Gln Ile Asp	Leu Asp Asp	
1370	1375	1380	
gcc gac gtg ccc gcg ttc gtc	gcc ggg atc gcg gag	agc acc ggt	4194
Ala Asp Val Pro Ala Phe Val	Ala Gly Ile Ala Glu	Ser Thr Gly	
1385	1390	1395	
gaa ttc ctg gag atc gag aat	ttc aac ctc ggt ggc	tcg caa tac	4239
Glu Phe Leu Glu Ile Glu Asn	Phe Asn Leu Gly	Ser Gln Tyr	
1400	1405	1410	
gcg atc gcg ggc acg gta cgc	ggc ctc gag gcg ctc	gag gcc gag	4284
Ala Ile Ala Gly Thr Val Arg	Gly Leu Glu Ala Leu	Glu Ala Glu	
1415	1420	1425	
gtg gag cgg cgc cgc gag ctc	acc ggc ggc cga cgg	tcg ttc att	4329
Val Glu Arg Arg Arg Glu Leu	Thr Gly Gly Arg Arg	Ser Phe Ile	
1430	1435	1440	
ttg gtg ccc ggc atc gat gtt	ccg ttc cac tcg cga	gtg ctg cgg	4374
Leu Val Pro Gly Ile Asp Val	Pro Phe His Ser Arg	Val Leu Arg	
1445	1450	1455	
gtc ggg gtg gcc gaa ttc cgg	cgc tcg ctg gac cgg	gtc atg cgg	4419
Val Gly Val Ala Glu Phe Arg	Arg Ser Leu Asp Arg	Val Met Arg	
1460	1465	1470	
ccg acg cgg acc cga cct gat	cat cgg gcg cta cat	tcc caa cct	4464
Pro Thr Arg Thr Arg Pro Asp	His Arg Ala Leu His	Ser Gln Pro	
1475	1480	1485	
ggt gcc gcg gaa gtt caa ccc	tgg acc gcg act tca	tcc agg aaa	4509
Gly Ala Ala Glu Val Gln Pro	Trp Thr Ala Thr Ser	Ser Arg Lys	
1490	1495	1500	
tcc ggg att tgg tgc ccc gcc	gag ccg ctc gac gag	atc ctc gcc	4554
Ser Gly Ile Trp Cys Pro Ala	Glu Pro Leu Asp Glu	Ile Leu Ala	
1505	1510	1515	
gac tac gac acc tgg ctt cgc	gac gac cgg cga gat	ggc gcg cac	4599
Asp Tyr Asp Thr Trp Leu Arg	Asp Asp Arg Arg Asp	Gly Ala His	

1520	1525	1530	
ggt gtt cat cga gct gct ggc Gly Val His Arg Ala Ala Gly	atg gca att cgc cag Met Ala Ile Arg Gln	ccc ggt gcg Pro Gly Ala	4644
1535	1540	1545	
ctg gat cga gac gca gga tct Leu Asp Arg Asp Ala Gly Ser	gct gtt cat cga gga Ala Val His Arg Gly	ggc gcc ggc Gly Ala Gly	4689
1550	1555	1560	
ggg ctg ggt gtg gag cga ttc Gly Leu Gly Val Glu Arg Phe	gtc gag atc ggt gtg Val Glu Ile Gly Val	aag agc tca Lys Ser Ser	4734
1565	1570	1575	
ccg acg gtg gcg ggg tct tgc Pro Thr Val Ala Gly Ser Cys	cac caa cac cct caa His Gln His Pro Gln	act gcc cga Thr Ala Arg	4779
1580	1585	1590	
ata cgc cca cag cac agt gaa Ile Arg Pro Gln His Ser Glu	gtg ctc aac gcc gag Val Leu Asn Ala Glu	cgt gat gcg Arg Asp Ala	4824
1595	1600	1605	
cgg tgc tgt tcg cca ccg aca Arg Cys Cys Ser Pro Pro Thr	ccg acc cgg agc cgg Pro Thr Arg Ser Arg	agc cgg agg Ser Arg Arg	4869
1610	1615	1620	
aag acg agc cgg tcg cgg aat Lys Thr Ser Arg Ser Arg Asn	cgc ccg cgc cgg acg Arg Pro Arg Arg Thr	tgc tct cgg Ser Ser Arg	4914
1625	1630	1635	
aag ccg ccc ccg tcg cgc cgg Lys Pro Pro Pro Ser Arg Arg	ccg ctt cgt cgg cgg Pro Leu Arg Arg Arg	gcc cgc gtc Ala Arg Val	4959
1640	1645	1650	
ccg acg atc tgg ttt tcg acg Pro Thr Ile Trp Phe Ser Thr	ccg ccg atg cca cgc Pro Pro Met Pro Arg	tgc gtg atc Cys Val Ile	5004
1655	1660	1665	
gcg ctc tcg gcc aag atg cgc Ala Leu Ser Ala Lys Met Arg	atc gac cag atc gaa Ile Asp Gln Ile Glu	gaa ctc gac Glu Leu Asp	5049
1670	1675	1680	
tcc atc gag tcc atc acc gac Ser Ile Glu Ser Ile Thr Asp	ggt gcg tcg tcg cgg Gly Ala Ser Ser Arg	cgc aac cag Arg Asn Gln	5094
1685	1690	1695	
ctg ctg gtg gac ctg ggc tcc Leu Leu Val Asp Leu Gly Ser	gag ctg aac ctc ggt Glu Leu Asn Leu Gly	gcc att gaa Ala Ile Glu	5139
1700	1705	1710	
cgg cgc cgc cga atc gga cct Arg Arg Arg Arg Ile Gly Pro	ggc cgg tct gcg ctc Gly Arg Ser Ala Leu	aca ggt gac Thr Gly Asp	5184
1715	1720	1725	
caa act ggc gcg cac cta caa Gln Thr Gly Ala His Leu Gln	cgt tac ggc cca gtg Arg Tyr Gly Pro Val	ctt tcc gac Leu Ser Asp	5229
1730	1735	1740	
gcc atc aac gac cac gtt cgc Ala Ile Asn Asp His Val Arg	acc gtc ctc gga ccg Thr Val Leu Gly Pro	tcg ggc aag Ser Gly Lys	5274

1745	1750	1755	
cg <del>g</del> ccc ggc gcc atc gcc gag	cg <del>g</del> gtg aag aag acc	tgg gag ctc	5319
Arg Pro Gly Ala Ile Ala Glu	Arg Val Lys Lys Thr	Trp Glu Leu	
1760	1765	1770	
ggt gag gct ggg cca agc atg	tca ccg tcg agg tcg	cgc tgg gca	5364
Gly Glu Ala Gly Pro Ser Met	Ser Pro Ser Arg Ser	Arg Trp Ala	
1775	1780	1785	
ccc gcg agg gca gca gc <del>g</del> ttc	g <del>c</del> g <del>c</del> g <del>c</del> cca tgg	gcc acc tgc	5409
Pro Ala Arg Ala Ala Ala Phe	Ala Ala Ala Pro Trp	Ala Thr Cys	
1790	1795	1800	
acg agg gcg cgc tgg cc <del>g</del> atg	ccg cct ccg tcg aca	agg tca tcg	5454
Thr Arg Ala Arg Trp Pro Met	Pro Pro Pro Ser Thr	Arg Ser Ser	
1805	1810	1815	
acg cg <del>g</del> cg <del>g</del> tcg cat cg <del>g</del> tgg	ccg cgg cca ggg cgt	ttc ggt agc	5499
Thr Arg Arg Ser His Arg Trp	Pro Arg Pro Gly Arg	Phe Gly Ser	
1820	1825	1830	
gct gcg tcg gcc ggt agt gg <del>c</del>	ggc gcc acc atc gac	g <del>c</del> g <del>c</del> g <del>c</del>	5544
Ala Ala Ser Ala Gly Ser Gly	Gly Ala Thr Ile Asp	Ala Ala Ala	
1835	1840	1845	
ctc agc gag ttc acc gac caa	atc acc ggc cgt gag	ggc gtg ctg	5589
Leu Ser Glu Phe Thr Asp Gln	Ile Thr Gly Arg Glu	Gly Val Leu	
1850	1855	1860	
cct ccg cg <del>g</del> ccc gcc tgg tgc	tgg ggc agc tgg gac	tgg acg acc	5634
Pro Pro Arg Pro Ala Trp Cys	Trp Gly Ser Trp Asp	Trp Thr Thr	
1865	1870	1875	
cca tca acc gtt gcc gg <del>c</del> cgc	ccc gat tcc gag ctg	atc gac ttg	5679
Pro Ser Thr Val Ala Gly Arg	Pro Asp Ser Glu Leu	Ile Asp Leu	
1880	1885	1890	
gtc acc gcc gaa ctg gga cg <del>g</del>	act ggc cgc ggt tgg	tgg cac cg <del>g</del>	5724
Val Thr Ala Glu Leu Gly Arg	Thr Gly Arg Gly Trp	Trp His Arg	
1895	1900	1905	
tgt tcg acc cca aga agg cc <del>g</del>	tcg tat tcg acg acc	gct ggc cag	5769
Cys Ser Thr Pro Arg Arg Pro	Ser Tyr Ser Thr Thr	Ala Gly Gln	
1910	1915	1920	
cg <del>c</del> ccg cga gga cct gg <del>c</del> gaa	gct gtg gct gac cga	cg <del>g</del> aag gac	5814
Arg Pro Arg Gly Pro Gly Glu	Ala Val Ala Asp Arg	Arg Lys Asp	
1925	1930	1935	
cga agg cga cat cga cgc cga	ctg gcc g <del>c</del> ctg g <del>c</del>	gag cgc ttc	5859
Arg Arg Arg His Arg Arg Arg	Leu Ala Ala Leu Ala	Glu Arg Phe	
1940	1945	1950	
gag ggt gcc gcc acg tcg tgg	cga ccc agg cta cct	ggt ggc aag	5904
Glu Gly Ala Ala Thr Ser Trp	Arg Pro Arg Leu Pro	Gly Gly Lys	
1955	1960	1965	
gta agt cgc tcg cgc ggg cc <del>g</del>	gca gat cca tgc atc	gct gta cg <del>g</del>	5949
Val Ser Arg Ser Arg Gly Pro	Ala Asp Pro Cys Ile	Ala Val Arg	

1970	1975	1980	
ccg cat gcc gcc ggc gcc gag Pro His Ala Ala Gly Ala Glu 1985	aac ccc gaa ccc cgc Asn Pro Glu Pro Arg 1990	gta cgg cgg Val Arg Arg 1995	5994
cga agt tgc cgt ggt gac cgg Arg Ser Cys Arg Gly Asp Arg 2000	cgc ttc gaa ggg ttc Arg Phe Glu Gly Phe 2005	gat cgc cgc Asp Arg Arg 2010	6039
gtc ggt ggt ggc tcg gct gct Val Gly Gly Ser Ala Ala 2015	cga cgc gga gcc acc Arg Arg Gly Ala Thr 2020	gtc atc gcg Val Ile Ala 2025	6084
acc acc tcc aag ctc gac gag Thr Thr Ser Lys Leu Asp Glu 2030	gag cgg ctg cgg ttc Glu Arg Leu Arg Phe 2035	tac cgc acg Tyr Arg Thr 2040	6129
ctg tat cgc gac cac gcc cgt Leu Tyr Arg Asp His Ala Arg 2045	tac ggc gcg gcg ctg Tyr Gly Ala Ala Leu 2050	tgg ctg gtc Trp Leu Val 2055	6174
gcg gcg aac atg gcg tcc tac Ala Ala Asn Met Ala Ser Tyr 2060	tcc gac gtc gac gcc Ser Asp Val Asp Ala 2065	ctg gtc gaa Leu Val Glu 2070	6219
tgg atc ggc acc gaa cag acc Trp Ile Gly Thr Glu Gln Thr 2075	gaa agc ctt ggg ccg Glu Ser Leu Gly Pro 2080	cag tcg att Gln Ser Ile 2085	6264
cac atc aaa gac gcg cag acc His Ile Lys Asp Ala Gln Thr 2090	ccg acg ctg ctg ttc Pro Thr Leu Leu Phe 2095	cgt tcg cgg Arg Ser Arg 2100	6309
cgc acg cgt gtc ggg act gtc Arg Thr Arg Val Gly Thr Val 2105	gga ggc cgg ttc gcg Gly Gly Arg Phe Ala 2110	cgc cga gat Arg Arg Asp 2115	6354
gga gat gaa agt gct gct gtg Gly Asp Glu Ser Ala Ala Val 2120	gcg gtg caa cgg ctg Ala Val Gln Arg Leu 2125	atc ggc ggc Ile Gly Gly 2130	6399
ctg tcg acg atc ggc gcc gaa Leu Ser Thr Ile Gly Ala Glu 2135	cgc gac atg ccg tcg Arg Asp Met Pro Ser 2140	cgg ctc gag Arg Leu Glu 2145	6444
cgt ggt gct gcc cgg ctc gcc Arg Gly Ala Ala Arg Leu Ala 2150	caa ccg tgg cat gtt Gln Pro Trp His Val 2155	cgg cgg cga Arg Arg Arg 2160	6489
cgg gcc cta cgg cga agc caa Arg Ala Leu Arg Arg Ser Gln 2165	gtc cgc gct gga tgc Val Arg Ala Gly Cys 2170	cgt ggt gac Arg Gly Asp 2175	6534
gcg ctg gca cgc cga gtc gtc Ala Leu Ala Arg Arg Val Val 2180	ctg ggc ggc acg ggt Leu Gly Gly Thr Gly 2185	cag cct ggc Gln Pro Gly 2190	6579
gca cgc gct cat cgg ctg gac Ala Arg Ala His Arg Leu Asp 2195	ccg cgg cac cgg gct Pro Arg His Arg Ala 2200	gat ggg cca Asp Gly Pro 2205	6624

2195	2200	2205	
caa cga tgc cat cgt ggc cgc cgt cga aga ggc cg <sup>g</sup> ggt cac cac Gln Arg Cys His Arg Gly Arg Arg Arg Arg Gly Arg Gly His His 2210 2215 2220 6669			
cta ctc gac cga cga gat ggc gcg gct gct gct cga cct gtg tca Leu Leu Asp Arg Arg Asp Gly Ala Ala Ala Ala Arg Pro Val Ser 2225 2230 2235 6714			
tgc gga atc caa ggt ggc tgc ggc cgt tcg cc <sup>g</sup> atc aag gcc gac Cys Gly Ile Gln Gly Gly Cys Gly Arg Ser Pro Ile Lys Ala Asp 2240 2245 2250 6759			
ctg acc ggg ggc ctg cc <sup>g</sup> agg cca acc tcg aca tgg cc <sup>g</sup> agc tgg Leu Thr Gly Gly Leu Pro Arg Pro Thr Ser Thr Trp Pro Ser Trp 2255 2260 2265 6804			
cg <sup>g</sup> cca agg cgc gc <sup>g</sup> agc aga tgt cgg cag cc <sup>g</sup> cc <sup>g</sup> cc <sup>g</sup> tcg acg Arg Pro Arg Arg Ala Ser Arg Cys Arg Gln Arg Arg Pro Ser Thr 2270 2275 2280 6849			
agg acg cc <sup>g</sup> agg ccc ctg gc <sup>g</sup> cca tcg cc <sup>g</sup> cc <sup>g</sup> tc <sup>g</sup> cgt cc <sup>g</sup> cc <sup>g</sup> Arg Thr Pro Arg Pro Leu Ala Pro Ser Pro Arg Cys Arg Arg Arg 2285 2290 2295 6894			
ccc ggt ttc acc ccc gca cc <sup>g</sup> cc <sup>g</sup> cc <sup>g</sup> caa tgg gac gac ctc gat Pro Gly Phe Thr Pro Ala Pro Pro Pro Gln Trp Asp Asp Leu Asp 2300 2305 2310 6939			
gtc gac cc <sup>g</sup> gcc gac ctg gtg gtg atc gtc gg <sup>c</sup> gg <sup>c</sup> cgc gaa atc Val Asp Pro Ala Asp Leu Val Val Ile Val Gly Gly Arg Glu Ile 2315 2320 2325 6984			
ggc cc <sup>g</sup> tac ggc tcg tca cc <sup>g</sup> acc cc <sup>g</sup> ttc gag atg gag gtc gaa Gly Pro Tyr Gly Ser Ser Arg Thr Arg Phe Glu Met Glu Val Glu 2330 2335 2340 7029			
aac gag ctg tcg gc <sup>g</sup> gc <sup>g</sup> gtg ctg gag ctg gc <sup>g</sup> tgg acc act Asn Glu Leu Ser Ala Ala Gly Val Leu Glu Leu Ala Trp Thr Thr 2345 2350 2355 7074			
gg <sup>c</sup> ttg atc gct ggg aga cga cc <sup>g</sup> gca acc cc <sup>g</sup> ttg gta cga cac Gly Leu Ile Ala Gly Arg Arg Pro Ala Thr Arg Leu Val Arg His 2360 2365 2370 7119			
cga atc cc <sup>g</sup> cga aat ggt cga cga atc cga gtt ggt gca gc <sup>g</sup> cta Arg Ile Arg Arg Asn Gly Arg Arg Ile Arg Val Gly Ala Ala Leu 2375 2380 2385 7164			
cac gac gcc gtg gtg cag cc <sup>g</sup> gtc ggc att cc <sup>g</sup> gaa ttc gtt gat His Asp Ala Val Val Gln Arg Val Gly Ile Arg Glu Phe Val Asp 2390 2395 2400 7209			
gac ggc gc <sup>g</sup> atc gac ccc gac cac gcc tcg cc <sup>g</sup> ctg ctg gtg tc <sup>g</sup> Asp Gly Ala Ile Asp Pro Asp His Ala Ser Pro Leu Leu Val Ser 2405 2410 2415 7254			
gt <sup>c</sup> ttc ctg gag aag gac ttc gc <sup>g</sup> ttc gtg gtg tcc tc <sup>g</sup> gag gcc Val Phe Leu Glu Lys Asp Phe Ala Phe Val Val Ser Ser Glu Ala 7299			

2420	2425	2430	
gat gcg cgc gcc ttc gtc gag	ttc gat ccc gag cac	acg gtc atc	7344
Asp Ala Arg Ala Phe Val Glu	Phe Asp Pro Glu His	Thr Val Ile	
2435	2440	2445	
cgg ccg gtg ccc gac tcc acc	gac tgg cag gtc atc	cgc aag gcc	7389
Arg Pro Val Pro Asp Ser Thr	Asp Trp Gln Val Ile	Arg Lys Ala	
2450	2455	2460	
ggc acc gag atc cgg gtg ccg	cga aag acc aag ctg	tcc cgc gtc	7434
Gly Thr Glu Ile Arg Val Pro	Arg Lys Thr Lys Leu	Ser Arg Val	
2465	2470	2475	
gtc ggc ggc cag atc ccg acc	ggg ttc gac ccg acg	gtg tgg ggc	7479
Val Gly Gly Gln Ile Pro Thr	Gly Phe Asp Pro Thr	Val Trp Gly	
2480	2485	2490	
atc agc gca gac atg gcc ggt	tcc atc gac ccg ttg	gct gta tgg	7524
Ile Ser Ala Asp Met Ala Gly	Ser Ile Asp Arg Leu	Ala Val Trp	
2495	2500	2505	
aac atg tgg cgg acc gtc gac	cgg ttc ctg tcg tcc	ggt ttc agc	7569
Asn Met Trp Arg Thr Val Asp	Arg Phe Leu Ser Ser	Gly Phe Ser	
2510	2515	2520	
ccg gcc gag gtg atg cgt tac	gtg cac ccg agt ttg	gtg gcc aac	7614
Pro Ala Glu Val Met Arg Tyr	Val His Pro Ser Leu	Val Ala Asn	
2525	2530	2535	
acc cag ggc acc ggc atg ggc	ggc ggc acg tcg atg	cag acg atg	7659
Thr Gln Gly Thr Gly Met Gly	Gly Gly Thr Ser Met	Gln Thr Met	
2540	2545	2550	
tac cac ggc aat ctg ttg ggc	cgc aac aag ccg aac	gac atc ttc	7704
Tyr His Gly Asn Leu Leu Gly	Arg Asn Lys Pro Asn	Asp Ile Phe	
2555	2560	2565	
cag gaa gtc ttg ccg ata tca	ttc gcc gcg cac gtg	gtt cag tcc	7749
Gln Glu Val Leu Pro Ile Ser	Phe Ala Ala His Val	Val Gln Ser	
2570	2575	2580	
tac gtc ggt agc tac ggt gcg	atg atc cac ccg gta	gcc gcg tgc	7794
Tyr Val Gly Ser Tyr Gly Ala	Met Ile His Pro Val	Ala Ala Cys	
2585	2590	2595	
gcc acc gcc gcg gtg tcg gtc	gag gaa ggt gtc gac	aag atc cgg	7839
Ala Thr Ala Ala Val Ser Val	Glu Glu Gly Val Asp	Lys Ile Arg	
2600	2605	2610	
ttg gga agg ctc aac tgg tgg	tcg gcg gcc gtg gat	gac ctg acg	7884
Leu Gly Arg Leu Asn Trp Trp	Ser Ala Ala Val Asp	Asp Leu Thr	
2615	2620	2625	
ctg gag ggc atc atc gga ttc	ggt gac atg gcc gcc	acc gcc gac	7929
Leu Glu Gly Ile Ile Gly Phe	Gly Asp Met Ala Ala	Thr Ala Asp	
2630	2635	2640	
acg tcc atg atg cgc ggc cgc	ggc atc cac gac tcg	aag ttt tcc	7974
Thr Ser Met Met Arg Gly Arg	Gly Ile His Asp Ser	Lys Phe Ser	

2645	2650	2655	
cg <sup>g</sup> ccc aac gac cg <sup>c</sup> cg <sup>c</sup> cgt	ctg gct tcg tcg aag	ccc aag gc <sup>g</sup>	8019
Arg Pro Asn Asp Arg Arg Arg	Leu Ala Ser Ser Lys	Pro Lys Ala	
2660	2665	2670	
gc <sup>g</sup> gga cga tcc tgt tgg gc <sup>g</sup>	cg <sup>g</sup> gga cct ggc gct	gc <sup>g</sup> gat ggg	8064
Ala Gly Arg Ser Cys Trp Ala	Arg Gly Pro Gly Ala	Ala Asp Gly	
2675	2680	2685	
gct gcc ggt gct ggc ggt	ggg ttc gc <sup>c</sup> cag tc <sup>g</sup>	ttc ggc gac	8109
Ala Ala Gly Ala Gly Gly	Gly Phe Ala Gln Ser	Phe Gly Asp	
2690	2695	2700	
ggc gt <sup>g</sup> cac acc tc <sup>g</sup> at <sup>c</sup> cg <sup>c</sup>	cc <sup>c</sup> ggg cct ggg cg <sup>c</sup>	gct ggg ggc	8154
Gly Val His Thr Ser Ile Arg	Pro Gly Pro Gly Arg	Ala Gly Gly	
2705	2710	2715	
ggc g <sup>c</sup> cg <sup>g</sup> cg <sup>g</sup> caa gga tt <sup>c</sup>	agc tgc ggc ggg cg <sup>c</sup>	tgg cca agc	8199
Gly Ala Arg Arg Gln Gly Phe	Ser Cys Gly Gly Arg	Trp Pro Ser	
2720	2725	2730	
tc <sup>g</sup> gt <sup>g</sup> gc <sup>c</sup> gc <sup>c</sup> gac gac gt <sup>g</sup>	gc <sup>g</sup> gtc at <sup>c</sup> tc <sup>c</sup> aag	cac gac acc	8244
Cys Val Ala Ala Asp Asp Val	Ala Val Ile Ser Lys	His Asp Thr	
2735	2740	2745	
tc <sup>g</sup> ac <sup>g</sup> ct <sup>g</sup> gc <sup>c</sup> aac gat cc <sup>c</sup>	aac gag acc gag tt <sup>g</sup>	cat gaa cg <sup>g</sup>	8289
Ser Thr Leu Ala Asn Asp Pro	Asn Glu Thr Glu Leu	His Glu Arg	
2750	2755	2760	
ct <sup>c</sup> gc <sup>c</sup> gac gc <sup>c</sup> ct <sup>g</sup> gg <sup>c</sup> cg <sup>t</sup>	tc <sup>c</sup> gag ggc gc <sup>c</sup> cc <sup>c</sup>	ctg ttc gt <sup>g</sup>	8334
Leu Ala Asp Ala Leu Gly Arg	Ser Glu Gly Ala Pro	Leu Phe Val	
2765	2770	2775	
gt <sup>g</sup> tc <sup>g</sup> cag aag agc ct <sup>g</sup> acc	ggc cag cca agg gc <sup>g</sup>	gc <sup>g</sup> cg <sup>g</sup> cg <sup>g</sup>	8379
Val Ser Gln Lys Ser Leu Thr	Gly Gln Pro Arg Ala	Ala Arg Arg	
2780	2785	2790	
tct tcc aga tga			8391
Ser Ser Arg			
2795			

<210> 114 <211> 2796 <212> PRT <213> Mycobacterium bovis <400> 114

Met Gly Thr Arg Thr Gly Gly Arg Gly Pro Gly Ser Val Arg Gln Ala  
1 5 10 15

Pro Asp Val Gly Arg Arg Val Gly Ala Arg Arg Val Ala Tyr Pro Asp  
20 25 30

Arg Gly Asp Pro Gly Ala Gly Pro Ser Arg His Gly Pro Arg Gly His  
35 40 45

Pro Ala Gly Arg His Gly Gly His Ser Gln Gly Val Leu Ala Val Glu  
50 55 60

Ala Leu Lys Ala Gly Gly Ala Arg Asp Val Glu Leu Phe Ala Leu Ala  
65 70 75 80

Gln Leu Ile Gly Ala Ala Gly Thr Leu Val Ala Arg Arg Arg Glu Phe  
85 90 95

Pro Ser Trp Ala Ile Ala Pro Met Val Ser Val Thr Asn Ala Asp Pro  
100 105 110

Glu Arg Ile Gly Arg Leu Leu Asp Glu Phe Ala Gln Asp Val Arg Thr  
115 120 125

Val Leu Pro Pro Val Leu Ser Ile Arg Asn Gly Arg Arg Ala Val Val  
130 135 140

Ile Thr Gly Thr Pro Glu Gln Leu Ser Arg Phe Glu Leu Tyr Cys Arg  
145 150 155 160

Gln Ile Ser Glu Lys Glu Glu Ala Asp Arg Lys Asn Lys Val Arg Gly  
165 170 175

Gly Asp Val Phe Ser Pro Val Phe Glu Pro Val Gln Val Glu Val Gly  
180 185 190

Phe His Thr Pro Arg Leu Ser Asp Gly Ile Asp Ile Val Ala Gly Trp  
195 200 205

Ala Glu Lys Ala Gly Leu Asp Val Ala Leu Ala Arg Glu Leu Ala Asp  
210 215 220

Ala Ile Leu Ile Arg Lys Val Asp Trp Val Asp Glu Ile Thr Arg Val  
225 230 235 240

His Arg Ala Gly Ala Arg Trp Ile Leu Asp Leu Gly Pro Gly Asp Ile  
245 250 255

Leu Thr Arg Leu Thr Ala Pro Val Ile Arg Gly Leu Gly Ile Gly Ile  
260 265 270

Val Pro Ala Arg Thr Arg Gly Gly Gln Arg Asn Leu Phe Thr Val Gly  
275 280 285

Ala Thr Pro Glu Val Ala Arg Ala Trp Ser Ser Tyr Ala Pro Thr Val  
290 295 300

Val Arg Leu Pro Asp Gly Arg Val Lys Leu Ser Thr Lys Phe Thr Arg  
 305 310 315 320

Leu Thr Arg Arg Ser Pro Ile Leu Leu Ala Gly Met Thr Pro Thr Thr  
 325 330 335

Val Asp Ala Lys Ile Val Ala Ala Ala Asn Gly Arg His Trp Ala  
 340 345 350

Glu Leu Ala Ala Arg Gly Arg Ser Pro Lys Arg Ser Ser Val Thr Ala  
 355 360 365

Ser Asn Lys Trp Pro Ala Cys Ser Ser Arg Ala Ala Pro Ile Ser Ser  
 370 375 380

Thr Arg Cys Ser Ser Ile Pro Thr Cys Glu Ala Ser Gly Gly Arg Gln  
 385 390 395 400

Ala Val Gly Ala Glu Gly Pro Pro Val Arg Arg Arg Asp Arg Arg Arg  
 405 410 415

Gly Asp Gln Arg Arg His Pro Arg Pro Arg Arg Gly Arg Arg Ala Asp  
 420 425 430

Arg Arg Thr Gly Arg His Arg His Gln Pro Arg Arg Val Gln Thr Arg  
 435 440 445

Asp His Arg Ala Asp Pro Leu Gly Asp Ser His Arg His Arg Gly Ala  
 450 455 460

His Gln Ala Gly Asp His Ala Arg Arg Gly Pro Gly Ala Pro Ala Gly  
 465 470 475 480

Thr Ile Pro Gly Arg Ile Ser His Leu Leu Leu Ala Thr Tyr Ser Ala  
 485 490 495

Asp Arg Ala Pro Arg Gln His His Val Cys Val Gly Gly His Leu  
 500 505 510

Gly Thr Pro Lys Lys Gly Cys Gly Tyr Leu Ser Gly Pro Gly Arg Ser  
 515 520 525

Val Arg Leu Pro Ile Asp Ala Asp Arg Arg Ile Leu Val Gly Thr Ala  
 530 535 540

Ala Met Ala Thr Lys Glu Ser Thr Thr Ser Pro Ser Val Lys Arg Met  
545 550 555 560

Leu Val Asp Thr Gln Gly Thr Asp Gln Trp Ile Ser Ala Gly Lys Ala  
565 570 575

Gln Gly Arg Met Pro Pro Ala Glu Ser Ala Arg Cys Arg His Pro Arg  
580 585 590

Asp Arg His Ser Ala Ser Val Arg Arg Cys Ser Thr Arg Trp Pro Val  
595 600 605

Thr Arg Arg Arg Ser Arg Ser Val Ala Trp Pro Arg Pro Pro Ser Pro  
610 615 620

Thr Cys Arg Arg Arg His Asp Leu Pro Ala Val Ala Ala Gly Ala  
625 630 635 640

Thr Ser Asn Trp Pro Ser Gly Lys Ala Thr Arg Pro Pro Thr Pro Pro  
645 650 655

Arg Trp Ala Ala Arg Gly Trp Pro Thr Leu Ala Gly Pro Leu Arg Ala  
660 665 670

Asp Ala Ala Ala Cys Arg Ser Pro Val Ala Pro Thr Gly Phe Arg Pro  
675 680 685

Asp Pro Asp Ala Ile His Arg Cys Trp Pro Ala Gly Gln Ser Ala Ala  
690 695 700

Ala Ile Ala Ala Leu Val Ala Arg Tyr Pro Asp Ala Glu Thr Val Gln  
705 710 715 720

Leu His Pro Ala Asp Val Pro Phe Phe Val Thr Leu Cys Lys Thr Leu  
725 730 735

Gly Lys Pro Val Asn Phe Val Pro Ala Ile Asp Leu Val Val Arg Ala  
740 745 750

Gly Gly Ala Ala Thr Arg Cys Gly Arg Pro Thr Thr Pro Ala Thr Thr  
755 760 765

Pro Met Arg Cys Ala Ser Phe Arg Ala Arg Val Gly Ser Arg Ile Thr  
770 775 780

Arg Met Asp Glu Pro Val Gly Glu Leu Leu Asp Ala Phe Glu Gln Ala  
785 790 795 800

Ala Ile Asp Glu Val Leu Gly Ala Gly Val Glu Pro Lys Asp Val Ala  
805 810 815

Ser Gly Arg Leu Gly Arg Ala Asp Val Ala Gly Pro Leu Ala Val Val  
820 825 830

Leu Asp Ala Pro Asp Val Arg Trp Ala Gly Arg Thr Val Thr Asn Pro  
835 840 845

Val His Arg Ile Arg Asp Pro Ala Glu Trp Gln Val His Asp Gly Pro  
850 855 860

Glu Asn Pro Arg Ala Ala His Ser Ser Thr Gly Ala Arg Leu Gln Thr  
865 870 875 880

His Gly Asp Asp Val Ala Leu Ser Val Ala Arg Leu Gly His Leu Gly  
885 890 895

Arg His Pro Ile His Val Ala Gly Gln His Arg Arg Trp Arg His Pro  
900 905 910

Gly Asp Arg His Arg Gly Arg His His Ala Met Arg Thr Val Leu Arg  
915 920 925

Ser Pro Pro Val Ser Thr Ala Arg Ser Ser Cys Cys Gly Gly Gln Arg  
930 935 940

Asp Gly His Phe Asp Gly Gly Leu Ala Pro Arg Ala Cys Cys Arg Pro  
945 950 955 960

His Arg His Arg His Val Arg Cys Ala Leu Ala Pro Ser Leu Thr Asn  
965 970 975

Val Pro Thr Arg Leu Val Gly Pro Cys Trp Pro Ala Val Phe Ala Ala  
980 985 990

Ile Gly Ser Ala Val Thr Asp Thr Gly Glu Pro Val Val Glu Gly Leu  
995 1000 1005

Leu Ser Leu Val His Leu Asp Thr Arg Pro Arg Val Val Gly Gln  
1010 1015 1020

Leu Pro Thr Val Pro Ala Gln Leu Thr Val Thr Gln Arg Leu Pro  
1025 1030 1035

Thr Gln Pro Ile Arg Thr Trp Ala Ala Ser Cys Arg Ser Arg Ser  
1040 1045 1050

Ser Phe Thr Ala Trp Arg Arg Asp Arg His Ser Arg Gly Ala Ile  
1055 1060 1065

Arg Asp Pro Gly Ser His Arg Phe Ala Glu Leu Asp Arg Arg Glu  
1070 1075 1080

Pro Val Ala Arg Cys Arg Glu Arg His Arg His Pro Ala Arg Arg  
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Arg Arg Asp Val Thr Ile Thr Ala Pro Val Asp Met Arg Pro Phe  
1100 1105 1110

Ala Val Val Ser Gly Asp His Asn Pro Ile His Thr Asp Arg Ala  
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Ala Ala Ala Cys Arg Pro Gly Val Ala Asp Arg Ala Arg His Val  
1130 1135 1140

Ala Val Gly Arg Gly Ala Thr Arg Gly Asp Arg His Arg Arg Ala  
1145 1150 1155

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 Cys Thr Gly Thr Asp Met Lys Leu Arg Leu Pro Ala Ser Pro Glu Thr  
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 His Leu Asp Met Leu Arg His Leu Tyr Gln Gly Cys Gln Val Val Gln  
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Ala	Thr Leu Glu Arg Pro	Lys Thr Leu Ser Pro	Gly Lys Asn Gly	
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gtt	gtc aaa gac gtt ttt	gcc ttc ggg ggt gct	gtg gag aac cct	3613
Val	Val Lys Asp Val Phe	Ala Phe Gly Ala Val	Glu Asn Pro	
1185	1190	1195		
gaa	tac tta gta ccg aga	gaa ggc act gcc tct	ccg ccc cac cct	3658
Glu	Tyr Leu Val Pro Arg	Glu Gly Thr Ala Ser	Pro Pro His Pro	
1200	1205	1210		
tct	cct gcc ttc agc cca	gcc ttt gac aac ctc	tat tac tgg gac	3703
Ser	Pro Ala Phe Ser Pro	Ala Phe Asp Asn Leu	Tyr Tyr Trp Asp	
1215	1220	1225		
cag	aac tca tcg gag cag	ggg cct cca cca agt	aac ttt gaa ggg	3748
Gln	Asn Ser Ser Glu Gln	Gly Pro Pro Pro Ser	Asn Phe Glu Gly	
1230	1235	1240		
acc	ccc act gca gag aac	cct gag tac cta ggc	ctg gat gta cct	3793
Thr	Pro Thr Ala Glu Asn	Pro Glu Tyr Leu Gly	Leu Asp Val Pro	
1245	1250	1255		

gta tga gacgtgtca gacgtcctgt gcttcagag tgggaaaggc ctgacttgcg 3849  
 Val  
 1260

gtctccatcg ccacaaagca gggagagggt cctctggcca cattacatcc agggcagacg 3909  
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Asp Met Lys Leu Arg Leu Pro Ala Ser Pro Glu Thr His Leu Asp Met  
 35 40 45

Leu Arg His Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu  
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Leu Thr Tyr Val Pro Ala Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile  
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Gln Glu Val Gln Gly Tyr Met Leu Ile Ala His Asn Gln Val Lys Arg  
 85 90 95

Val Pro Leu Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu  
 100 105 110

Asp Lys Tyr Ala Leu Ala Val Leu Asp Asn Arg Asp Pro Gln Asp Asn  
 115 120 125

Val Ala Ala Ser Thr Pro Gly Arg Thr Pro Glu Gly Leu Arg Glu Leu  
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Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Arg  
 145 150 155 160

Gly Asn Pro Gln Leu Cys Tyr Gln Asp Met Val Leu Trp Lys Asp Val  
 165 170 175

Phe Arg Lys Asn Asn Gln Leu Ala Pro Val Asp Ile Asp Thr Asn Arg  
 180 185 190

Ser Arg Ala Cys Pro Pro Cys Ala Pro Ala Cys Lys Asp Asn His Cys

195

200

205

Trp Gly Glu Ser Pro Glu Asp Cys Gln Ile Leu Thr Gly Thr Ile Cys  
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Thr Ser Gly Cys Ala Arg Cys Lys Gly Arg Leu Pro Thr Asp Cys Cys  
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His Glu Gln Cys Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys  
245 250 255

Leu Ala Cys Leu His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys  
260 265 270

Pro Ala Leu Val Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met His Asn  
275 280 285

Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser Cys Val Thr Thr Cys Pro  
290 295 300

Tyr Asn Tyr Leu Ser Thr Glu Val Gly Ser Cys Thr Leu Val Cys Pro  
305 310 315 320

Pro Asn Asn Gln Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu  
325 330 335

Lys Cys Ser Lys Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met Glu  
340 345 350

His Leu Arg Gly Ala Arg Ala Ile Thr Ser Asp Asn Val Gln Glu Phe  
355 360 365

Asp Gly Cys Lys Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser  
370 375 380

Phe Asp Gly Asp Pro Ser Ser Gly Ile Ala Pro Leu Arg Pro Glu Gln  
385 390 395 400

Leu Gln Val Phe Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile  
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Ser Ala Trp Pro Asp Ser Leu Arg Asp Leu Ser Val Phe Gln Asn Leu  
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Arg Ile Ile Arg Gly Arg Ile Leu His Asp Gly Ala Tyr Ser Leu Thr

435

440

445

Leu Gln Gly Leu Gly Ile His Ser Leu Gly Leu Arg Ser Leu Arg Glu  
 450 455 460

Leu Gly Ser Gly Leu Ala Leu Ile His Arg Asn Ala His Leu Cys Phe  
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Val His Thr Val Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala  
 485 490 495

Leu Leu His Ser Gly Asn Arg Pro Glu Glu Asp Leu Cys Val Ser Ser  
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Gly Leu Val Cys Asn Ser Leu Cys Ala His Gly His Cys Trp Gly Pro  
 515 520 525

Gly Pro Thr Gln Cys Val Asn Cys Ser His Phe Leu Arg Gly Gln Glu  
 530 535 540

Cys Val Glu Glu Cys Arg Val Trp Lys Gly Leu Pro Arg Glu Tyr Val  
 545 550 555 560

Ser Asp Lys Arg Cys Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn  
 565 570 575

Ser Ser Glu Thr Cys Phe Gly Ser Glu Ala Asp Gln Cys Ala Ala Cys  
 580 585 590

Ala His Tyr Lys Asp Ser Ser Cys Val Ala Arg Cys Pro Ser Gly  
 595 600 605

Val Lys Pro Asp Leu Ser Tyr Met Pro Ile Trp Lys Tyr Pro Asp Glu  
 610 615 620

Glu Gly Ile Cys Gln Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val  
 625 630 635 640

Asp Leu Asp Glu Arg Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Val  
 645 650 655

Thr Phe Ile Ile Ala Thr Val Glu Gly Val Leu Leu Phe Leu Ile Leu  
 660 665 670

Val Val Val Val Gly Ile Leu Ile Lys Arg Arg Arg Gln Lys Ile Arg

675

680

685

Lys Tyr Thr Met Arg Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro  
690 695 700

Leu Thr Pro Ser Gly Ala Met Pro Asn Gln Ala Gln Met Arg Ile Leu  
705 710 715 720

Lys Glu Thr Glu Leu Arg Lys Val Lys Val Leu Gly Ser Gly Ala Phe  
725 730 735

Gly Thr Val Tyr Lys Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys  
740 745 750

Ile Pro Val Ala Ile Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala  
755 760 765

Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met Ala Gly Val Gly Ser  
770 775 780

Pro Tyr Val Ser Arg Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln  
785 790 795 800

Leu Val Thr Gln Leu Met Pro Tyr Gly Cys Leu Leu Asp His Val Arg  
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Glu His Arg Gly Arg Leu Gly Ser Gln Asp Leu Leu Asn Trp Cys Val  
820 825 830

Gln Ile Ala Lys Gly Met Ser Tyr Leu Glu Asp Val Arg Leu Val His  
835 840 845

Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val  
850 855 860

Lys Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr  
865 870 875 880

Glu Tyr His Ala Asp Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu  
885 890 895

Glu Ser Ile Leu Arg Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser  
900 905 910

Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr

915

920

925

Asp Gly Ile Pro Ala Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu  
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Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met  
 945 950 955 960

Val Lys Cys Trp Met Ile Asp Ser Glu Cys Arg Pro Arg Phe Arg Glu  
 965 970 975

Leu Val Ser Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val  
 980 985 990

Val Ile Gln Asn Glu Asp Leu Gly Pro Ser Ser Pro Met Asp Ser Thr  
 995 1000 1005

Phe Tyr Arg Ser Leu Leu Glu Asp Asp Asp Met Gly Asp Leu Val  
 1010 1015 1020

Asp Ala Glu Glu Tyr Leu Val Pro Gln Gln Gly Phe Phe Ser Pro  
 1025 1030 1035

Asp Pro Thr Pro Gly Thr Gly Ser Thr Ala His Arg Arg His Arg  
 1040 1045 1050

Ser Ser Ser Thr Arg Ser Gly Gly Gly Glu Leu Thr Leu Gly Leu  
 1055 1060 1065

Glu Pro Ser Glu Glu Gly Pro Pro Arg Ser Pro Leu Ala Pro Ser  
 1070 1075 1080

Glu Gly Ala Gly Ser Asp Val Phe Asp Gly Asp Leu Ala Met Gly  
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Val Thr Lys Gly Leu Gln Ser Leu Ser Pro His Asp Leu Ser Pro  
 1100 1105 1110

Leu Gln Arg Tyr Ser Glu Asp Pro Thr Leu Pro Leu Pro Pro Glu  
 1115 1120 1125

Thr Asp Gly Tyr Val Ala Pro Leu Ala Cys Ser Pro Gln Pro Glu  
 1130 1135 1140

Tyr Val Asn Gln Ser Glu Val Gln Pro Gln Pro Pro Leu Thr Pro

1145

1150

1155

Glu Gly Pro Leu Pro Pro Val Arg Pro Ala Gly Ala Thr Leu Glu  
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Arg Pro Lys Thr Leu Ser Pro Gly Lys Asn Gly Val Val Lys Asp  
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Val Phe Ala Phe Gly Gly Ala Val Glu Asn Pro Glu Tyr Leu Val  
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Pro Arg Glu Gly Thr Ala Ser Pro Pro His Pro Ser Pro Ala Phe  
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Ser Pro Ala Phe Asp Asn Leu Tyr Tyr Trp Asp Gln Asn Ser Ser  
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 Ser Gly Gly Ser Pro Thr Ser Leu Trp Gly Leu Leu Phe Leu Ser  
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gcc gcg ctc tcg ctc tgg ccg acg agt gga gaa atc tgc ggg cca ggc 153  
 Ala Ala Leu Ser Leu Trp Pro Thr Ser Gly Glu Ile Cys Gly Pro Gly  
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 Ile Asp Ile Arg Asn Asp Tyr Gln Gln Leu Lys Arg Leu Glu Asn Cys  
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acg gtg atc gag ggc tac ctc cac atc ctg ctc atc tcc aag gcc gag 249  
 Thr Val Ile Glu Gly Tyr Leu His Ile Leu Leu Ile Ser Lys Ala Glu  
 55 60 65

gac tac cgc agc tac cgc ttc ccc aag ctc acg gtc att acc gag tac 297  
 Asp Tyr Arg Ser Tyr Arg Phe Pro Lys Leu Thr Val Ile Thr Glu Tyr  
 70 75 80

ttg ctg ctg ttc cga gtg gct ggc ctc gag agc ctc gga gac ctc ttc 345

Leu	Leu	Leu	Phe	Arg	Val	Ala	Gly	Leu	Glü	Ser	Leu	Gly	Asp	Leu	Phe
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ccc	aac	ctc	acg	gtc	atc	cgc	ggc	tgg	aaa	ctc	ttc	tac	aac	tac	gcc
Pro	Asn	Leu	Thr	Val	Ile	Arg	Gly	Trp	Lys	Leu	Phe	Tyr	Asn	Tyr	Ala
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ctg	gtc	atc	tcc	gag	atg	acc	aat	ctc	aag	gat	att	ggg	ctt	tac	aac
Leu	Val	Ile	Phe	Glu	Met	Thr	Asn	Leu	Lys	Asp	Ile	Gly	Leu	Tyr	Asn
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ctg	agg	aac	att	act	cgg	ggg	gcc	atc	agg	att	gag	aaa	aat	gct	gac
Leu	Arg	Asn	Ile	Thr	Arg	Gly	Ala	Ile	Arg	Ile	Glu	Lys	Asn	Ala	Asp
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ctc	tgt	tac	ctc	tcc	act	gtg	gac	tgg	tcc	ctg	atc	ctg	gat	gct	gtg
Leu	Cys	Tyr	Leu	Ser	Thr	Val	Asp	Trp	Ser	Leu	Ile	Leu	Asp	Ala	Val
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tcc	aat	aac	tac	att	gtg	ggg	aat	aag	ccc	cca	aag	gaa	tgt	ggg	gac
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ctg	tgt	cca	ggg	acc	atg	gag	gag	aag	ccg	atg	tgt	gag	aag	acc	acc
Leu	Cys	Pro	Gly	Thr	Met	Glu	Glu	Lys	Pro	Met	Cys	Glu	Lys	Thr	Thr
					185				190				195		
atc	aac	aat	gag	tac	aac	tac	cgc	tgc	tgg	acc	aca	aac	cgc	tgc	cag
Ile	Asn	Asn	Glu	Tyr	Asn	Tyr	Arg	Cys	Trp	Thr	Thr	Asn	Arg	Cys	Gln
					200				205				210		
aaa	atg	tgc	cca	agc	acg	tgt	ggg	aag	cg	g	cc	g	aa	cc	aa
Lys	Met	Cys	Pro	Ser	Thr	Cys	Gly	Lys	Arg	Ala	Cys	Thr	Glu	Asn	Asn
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gag	tgc	tgc	cac	ccc	gag	tgc	ctg	ggc	agc	tgc	agc	g	c	c	tt
Glu	Cys	Cys	His	Pro	Glu	Cys	Leu	Gly	Ser	Cys	Ser	Ala	Pro	Asp	Asn
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gac	acg	gcc	tgt	gta	gct	tgc	cgc	cac	tac	tac	tat	g	cc	gg	tt
Asp	Thr	Ala	Cys	Val	Ala	Cys	Arg	His	Tyr	Tyr	Tyr	Ala	Gly	Val	Cys
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gtg	cct	gcc	tgc	ccg	ccc	aac	acc	tac	agg	ttt	gag	ggc	tgg	cgc	tgt
Val	Pro	Ala	Cys	Pro	Pro	Asn	Thr	Tyr	Arg	Phe	Glu	Gly	Trp	Arg	Cys
					265				270				275		
gtg	gac	cgt	gac	ttc	tgc	gcc	aac	atc	ctc	agc	gcc	gag	agc	agc	gac
Val	Asp	Arg	Asp	Phe	Cys	Ala	Asn	Ile	Leu	Ser	Ala	Glu	Ser	Ser	Asp
					280				285				290		
tcc	gag	ggg	ttt	gtg	atc	cac	gac	ggc	gag	tgc	atg	cag	gag	tgc	ccc
Ser	Glu	Gly	Phe	Val	Ile	His	Asp	Gly	Glu	Cys	Met	Gln	Glu	Cys	Pro
					295				300				305		
tcg	ggc	ttc	atc	cgc	aac	ggc	agc	cag	agc	atg	tac	tgc	atc	cct	tgt
Ser	Gly	Phe	Ile	Arg	Asn	Gly	Ser	Gln	Ser	Met	Tyr	Cys	Ile	Pro	Cys
					310				315				320		
qaa	qgt	cct	tgc	ccg	aag	gtc	tgt	gag	gaa	gaa	aag	aaa	aca	aag	acc

09:25:17.00 - 10:20:10.00

Glu	Gly	Pro	Cys	Pro	Lys	Val	Cys	Glu	Glu	Glu	Lys	Lys	Thr	Lys	Thr	325	330	335	340
att	gat	tct	gtt	act	tct	gct	cag	atg	ctc	caa	gga	tgc	acc	atc	ttc				1113
Ile	Asp	Ser	Val	Thr	Ser	Ala	Gln	Met	Leu	Gln	Gly	Cys	Thr	Ile	Phe				
																345	350	355	
aag	ggc	aat	ttg	ctc	att	aac	atc	cga	cgg	ggg	aat	aac	att	gct	tca				1161
Lys	Gly	Asn	Leu	Leu	Ile	Asn	Ile	Arg	Arg	Gly	Asn	Asn	Ile	Ala	Ser				
																360	365	370	
gag	ctg	gag	aac	ttc	atg	ggg	ctc	atc	gag	gtg	gtg	acg	ggc	tac	gtg				1209
Glu	Leu	Glu	Asn	Phe	Met	Gly	Leu	Ile	Glu	Val	Val	Thr	Gly	Tyr	Val				
																375	380	385	
aag	atc	cgc	cat	tct	cat	gcc	ttg	gtc	tcc	ttg	tcc	ttc	cta	aaa	aac				1257
Lys	Ile	Arg	His	Ser	His	Ala	Leu	Val	Ser	Leu	Ser	Phe	Leu	Lys	Asn				
																390	395	400	
ctt	cgc	ctc	atc	cta	gga	gag	gag	cag	cta	gaa	ggg	aat	tac	tcc	ttc				1305
Leu	Arg	Leu	Ile	Leu	Gly	Glu	Glu	Gln	Leu	Glu	Gly	Asn	Tyr	Ser	Phe				
																405	410	415	420
tac	gtc	ctc	gac	aac	cag	aac	ttg	cag	caa	ctg	tgg	gac	tgg	gac	cac				1353
Tyr	Val	Leu	Asp	Asn	Gln	Asn	Leu	Gln	Gln	Leu	Trp	Asp	Trp	Asp	His				
																425	430	435	
cgc	aac	ctg	acc	atc	aaa	gca	ggg	aaa	atg	tac	ttt	gct	ttc	aat	ccc				1401
Arg	Asn	Leu	Thr	Ile	Lys	Ala	Gly	Lys	Met	Tyr	Phe	Ala	Phe	Asn	Pro				
																440	445	450	
aaa	tta	tgt	gtt	tcc	gaa	att	tac	cgc	atg	gag	gaa	gtg	acg	ggg	act				1449
Lys	Leu	Cys	Val	Ser	Glu	Ile	Tyr	Arg	Met	Glu	Glu	Val	Thr	Gly	Thr				
																455	460	465	
aaa	ggg	cgc	caa	agc	aaa	ggg	gac	ata	aac	acc	agg	aac	aac	ggg	gag				1497
Lys	Gly	Arg	Gln	Ser	Lys	Gly	Asp	Ile	Asn	Thr	Arg	Asn	Asn	Gly	Glu				
																470	475	480	
aga	gcc	tcc	tgt	gaa	agt	gac	gtc	ctg	cat	ttc	acc	tcc	acc	acc	acg				1545
Arg	Ala	Ser	Cys	Glu	Ser	Asp	Val	Leu	His	Phe	Thr	Ser	Thr	Thr	Thr				
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tcg	aag	aat	cgc	atc	atc	ata	acc	tgg	cac	cg	tg	cc	cc	cct	gac				1593
Ser	Lys	Asn	Arg	Ile	Ile	Ile	Thr	Trp	His	Arg	Tyr	Arg	Pro	Pro	Asp				
																505	510	515	
tac	agg	gat	ctc	atc	agc	ttc	acc	gtt	tac	tac	aag	gaa	gca	ccc	ttt				1641
Tyr	Arg	Asp	Leu	Ile	Ser	Phe	Thr	Val	Tyr	Tyr	Lys	Glu	Ala	Pro	Phe				
																520	525	530	
aag	aat	gtc	aca	gag	tat	gat	ggg	cag	gat	gcc	tgc	ggc	tcc	aac	agc				1689
Lys	Asn	Val	Thr	Glu	Tyr	Asp	Gly	Gln	Asp	Ala	Cys	Gly	Ser	Asn	Ser				
																535	540	545	
tgg	aac	atg	gtg	gac	gtg	gac	ctc	ccg	ccc	aac	aag	gac	gtg	gag	ccc				1737
Trp	Asn	Met	Val	Asp	Val	Asp	Leu	Pro	Pro	Asn	Lys	Asp	Val	Glu	Pro				
																550	555	560	
ggc	atc	tta	cta	cat	qqq	ctq	aaq	ccc	tqq	act	cag	tac	gcc	gtt	tac				1785

Gly Ile Leu Leu His Gly Leu Lys Pro Trp Thr Gln Tyr Ala Val Tyr 565 570 575 580	
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gcc aag agt gag atc ttg tac att cgc acc aat gct tca gtt cct tcc Ala Lys Ser Glu Ile Leu Tyr Ile Arg Thr Asn Ala Ser Val Pro Ser 600 605 610	1881
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aag cag gcc gag aag gag gac gct gaa tac cgc aaa gtc ttt gag aat Lys Gln Ala Glu Lys Glu Ala Glu Tyr Arg Lys Val Phe Glu Asn 710 715 720	2217
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gtc att tct aac ctt cgg cct ttc aca ttg tac cgc atc gat atc cac Val Ile Ser Asn Leu Arg Pro Phe Thr Leu Tyr Arg Ile Asp Ile His 790 795 800	2457
agc tgc aac cac gag gct gag aag ctg ggc tgc agc gcc tcc aac ttc	2505

Ser Cys Asn His Glu Ala Glu Lys Leu Gly Cys Ser Ala Ser Asn Phe 805 810 815 820	2553
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gaa acc aga gtg gcc att aaa aca gtg aac gag gcc gca agc atg Glu Thr Arg Val Ala Ile Lys Thr Val Asn Glu Ala Ala Ser Met 1030 1035 1040	3213
cgt gag agg att gag ttt ctc aac gaa gct tct gtg atg aag gag	

Arg Glu Arg Ile Glu Phe Leu Asn Glu	Ala Ser Val Met Lys Glu		
1045	1050	1055	
tgc aat tgt cac cat gtg gtg cga ttg	ctg ggt gtg gtg tcc	caa	3258
Phe Asn Cys His His Val Val Arg Leu	Leu Gly Val Val Ser	Gln	
1060	1065	1070	
ggc cag cca aca ctg gtc atc atg gaa	ctg atg aca cgg ggc	gat	3303
Gly Gln Pro Thr Leu Val Ile Met Glu	Leu Met Thr Arg Gly	Asp	
1075	1080	1085	
ctc aaa agt tat ctc cgg tct ctg agg	cca gaa atg gag aat	aat	3348
Leu Lys Ser Tyr Leu Arg Ser Leu Arg	Pro Glu Met Glu Asn	Asn	
1090	1095	1100	
cca gtc cta gca cct cca agc ctg agc	aag atg att cag atg	gcc	3393
Pro Val Leu Ala Pro Pro Ser Leu Ser	Lys Met Ile Gln Met	Ala	
1105	1110	1115	
gga gag att gca gac ggc atg gca tac	ctc aac gcc aat aag	tgc	3438
Gly Glu Ile Ala Asp Gly Met Ala Tyr	Leu Asn Ala Asn Lys	Phe	
1120	1125	1130	
gtc cac aga gac ctt gct gcc cgg aat	tgc atg gta gcc gaa	gat	3483
Val His Arg Asp Leu Ala Ala Arg Asn	Cys Met Val Ala Glu	Asp	
1135	1140	1145	
tgc aca gtc aaa atc gga gat ttt ggt	atg acg cga gat atc	tat	3528
Phe Thr Val Lys Ile Gly Asp Phe Gly	Met Thr Arg Asp Ile	Tyr	
1150	1155	1160	
gag aca gac tat tac cgg aaa gga ggc	aaa ggg ctg ctg ccc	gtg	3573
Glu Thr Asp Tyr Tyr Arg Lys Gly Gly	Lys Gly Leu Leu Pro	Val	
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cgc tgg atg tct cct gag tcc ctc aag	gat gga gtc ttc acc	act	3618
Arg Trp Met Ser Pro Glu Ser Leu Lys	Asp Gly Val Phe Thr	Thr	
1180	1185	1190	
tac tcg gac gtc tgg tcc ttc ggg gtc	gtc ctc tgg gag atc	gcc	3663
Tyr Ser Asp Val Trp Ser Phe Gly Val	Val Leu Trp Glu Ile	Ala	
1195	1200	1205	
aca ctg gcc gag cag ccc tac cag ggc	ttg tcc aac gag caa	gtc	3708
Thr Leu Ala Glu Gln Pro Tyr Gln Gly	Leu Ser Asn Glu Gln	Val	
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ctt cgc ttc gtc atg gag ggc ggc ctt	ctg gac aag cca gac	aac	3753
Leu Arg Phe Val Met Glu Gly Gly Leu	Leu Asp Lys Pro Asp	Asn	
1225	1230	1235	
tgt cct gac atg ctg ttt gaa ctg atg	cgc atg tgc tgg cag	tat	3798
Cys Pro Asp Met Leu Phe Glu Leu Met	Arg Met Cys Trp Gln	Tyr	
1240	1245	1250	
aac ccc aag atg agg cct tcc ttc ctg	gag atc atc agc agc	atc	3843
Asn Pro Lys Met Arg Pro Ser Phe Leu	Glu Ile Ile Ser Ser	Ile	
1255	1260	1265	
aaa gag gag atg gag cct ggc ttc cgg	gag gtc tcc ttc tac	tac	3888

Lys	Glu	Glu	Met	Glu	Pro	Gly	Phe	Arg	Glu	Val	Ser	Phe	Tyr	Tyr	
1270									1275						1280
agc	gag	gag	aac	aag	ctg	ccc	gag	ccg	gag	gag	ctg	gac	ctg	gag	3933
Ser	Glu	Glu	Asn	Lys	Leu	Pro	Glu	Pro	Glu	Glu	Leu	Asp	Leu	Glu	
1285									1290						1295
cca	gag	aac	atg	gag	agc	gtc	ccc	ctg	gac	ccc	tcg	gcc	tcc	tcg	3978
Pro	Glu	Asn	Met	Glu	Ser	Val	Pro	Leu	Asp	Pro	Ser	Ala	Ser	Ser	
1300									1305						1310
tcc	tcc	ctg	cca	ctg	ccc	gac	aga	cac	tca	gga	cac	aag	gcc	gag	4023
Ser	Ser	Leu	Pro	Leu	Pro	Asp	Arg	His	Ser	Gly	His	Lys	Ala	Glu	
1315									1320						1325
aac	ggc	ccc	ggc	cct	ggg	gtg	ctg	gtc	ctc	cgc	gcc	agc	ttc	gac	4068
Asn	Gly	Pro	Gly	Pro	Gly	Val	Leu	Val	Leu	Arg	Ala	Ser	Phe	Asp	
1330									1335						1340
gag	aga	cag	cct	tac	gcc	cac	atg	aac	ggg	ggc	cgc	aag	aac	gag	4113
Glu	Arg	Gln	Pro	Tyr	Ala	His	Met	Asn	Gly	Gly	Arg	Lys	Asn	Glu	
1345									1350						1355
cg	g	cc	tt	cc	ct	cc	ca	tg	ac	tc	tg	ta	tc	ttggatc	4159
Arg	Ala	Leu	Pro	Leu	Pro	Gln	Ser	Ser	Thr	Cys					
1360									1365						
ctgaaatctgt	gcaaaacagta	acgtgtgcgc	acgcgcagcg	gggtgggggg	ggagagagag										4219
ttttaacaat	ccattcacaa	gcctcctgta	cctcagtgga	tcttcagttc	tgccttgc										4279
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aaccactgta	cacacccgcc	tgacaccgtg	ggtcattaca	aaaaaacacg	tggagatgga										4639
aatttttacc	tttatcttc	accttctag	ggacatgaaa	tttacaaagg	gccatcggtc										4699
atccaaggct	gttaccattt	taacgctgcc	taattttgcc	aaaatcctga	actttctccc										4759
tcatcgcccc	ggcgctgatt	cctcgtgtcc	ggaggcatgg	gtgagcatgg	cagctgggg										4819
ctccatttga	gagacacgct	ggcgacacac	tccgtccatc	cgactgcccc	tgctgtgtc										4879
ctcaaggcca	caggcacaca	ggtctcattt	cttctgacta	gattattatt	tggggagaact										4939
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&lt;210&gt; 120 &lt;211&gt; 1367 &lt;212&gt; PRT &lt;213&gt; Homo sapiens &lt;400&gt; 120

Met Lys Ser Gly Ser Gly Gly Ser Pro Thr Ser Leu Trp Gly Leu  
1 5 10 15

Leu Phe Leu Ser Ala Ala Leu Ser Leu Trp Pro Thr Ser Gly Glu Ile  
20 25 30

Cys Gly Pro Gly Ile Asp Ile Arg Asn Asp Tyr Gln Gln Leu Lys Arg  
35 40 45

Leu Glu Asn Cys Thr Val Ile Glu Gly Tyr Leu His Ile Leu Leu Ile  
50 55 60

Ser Lys Ala Glu Asp Tyr Arg Ser Tyr Arg Phe Pro Lys Leu Thr Val  
65 70 75 80

Ile Thr Glu Tyr Leu Leu Leu Phe Arg Val Ala Gly Leu Glu Ser Leu  
85 90 95

Gly Asp Leu Phe Pro Asn Leu Thr Val Ile Arg Gly Trp Lys Leu Phe  
100 105 110

Tyr Asn Tyr Ala Leu Val Ile Phe Glu Met Thr Asn Leu Lys Asp Ile  
115 120 125

Gly Leu Tyr Asn Leu Arg Asn Ile Thr Arg Gly Ala Ile Arg Ile Glu  
130 135 140

Lys Asn Ala Asp Leu Cys Tyr Leu Ser Thr Val Asp Trp Ser Leu Ile  
145 150 155 160

Leu Asp Ala Val Ser Asn Asn Tyr Ile Val Gly Asn Lys Pro Pro Lys  
165 170 175

Glu Cys Gly Asp Leu Cys Pro Gly Thr Met Glu Glu Lys Pro Met Cys  
180 185 190

Glu Lys Thr Thr Ile Asn Asn Glu Tyr Asn Tyr Arg Cys Trp Thr Thr  
195 200 205

Asn Arg Cys Gln Lys Met Cys Pro Ser Thr Cys Gly Lys Arg Ala Cys  
210 215 220

Thr Glu Asn Asn Glu Cys Cys His Pro Glu Cys Leu Gly Ser Cys Ser  
225 230 235 240

Ala Pro Asp Asn Asp Thr Ala Cys Val Ala Cys Arg His Tyr Tyr Tyr  
245 250 255

Ala Gly Val Cys Val Pro Ala Cys Pro Pro Asn Thr Tyr Arg Phe Glu  
260 265 270

Gly Trp Arg Cys Val Asp Arg Asp Phe Cys Ala Asn Ile Leu Ser Ala  
275 280 285

Glu Ser Ser Asp Ser Glu Gly Phe Val Ile His Asp Gly Glu Cys Met  
290 295 300

Gln Glu Cys Pro Ser Gly Phe Ile Arg Asn Gly Ser Gln Ser Met Tyr  
305 310 315 320

Cys Ile Pro Cys Glu Gly Pro Cys Pro Lys Val Cys Glu Glu Lys  
325 330 335

Lys Thr Lys Thr Ile Asp Ser Val Thr Ser Ala Gln Met Leu Gln Gly  
340 345 350

Cys Thr Ile Phe Lys Gly Asn Leu Leu Ile Asn Ile Arg Arg Gly Asn  
355 360 365

Asn Ile Ala Ser Glu Leu Glu Asn Phe Met Gly Leu Ile Glu Val Val  
370 375 380

Thr Gly Tyr Val Lys Ile Arg His Ser His Ala Leu Val Ser Leu Ser  
385 390 395 400

Phe Leu Lys Asn Leu Arg Leu Ile Leu Gly Glu Glu Gln Leu Glu Gly  
405 410 415

Asn Tyr Ser Phe Tyr Val Leu Asp Asn Gln Asn Leu Gln Gln Leu Trp  
420 425 430

Asp Trp Asp His Arg Asn Leu Thr Ile Lys Ala Gly Lys Met Tyr Phe  
435 440 445

Ala Phe Asn Pro Lys Leu Cys Val Ser Glu Ile Tyr Arg Met Glu Glu  
450 455 460

Val Thr Gly Thr Lys Gly Arg Gln Ser Lys Gly Asp Ile Asn Thr Arg  
465 470 475 480

Asn Asn Gly Glu Arg Ala Ser Cys Glu Ser Asp Val Leu His Phe Thr  
485 490 495

Ser Thr Thr Thr Ser Lys Asn Arg Ile Ile Ile Thr Trp His Arg Tyr  
500 505 510

Arg Pro Pro Asp Tyr Arg Asp Leu Ile Ser Phe Thr Val Tyr Tyr Lys  
515 520 525

Glu Ala Pro Phe Lys Asn Val Thr Glu Tyr Asp Gly Gln Asp Ala Cys  
530 535 540

Gly Ser Asn Ser Trp Asn Met Val Asp Val Asp Leu Pro Pro Asn Lys  
545 550 555 560

Asp Val Glu Pro Gly Ile Leu Leu His Gly Leu Lys Pro Trp Thr Gln  
565 570 575

Tyr Ala Val Tyr Val Lys Ala Val Thr Leu Thr Met Val Glu Asn Asp  
580 585 590

His Ile Arg Gly Ala Lys Ser Glu Ile Leu Tyr Ile Arg Thr Asn Ala  
595 600 605

Ser Val Pro Ser Ile Pro Leu Asp Val Leu Ser Ala Ser Asn Ser Ser  
610 615 620

Ser Gln Leu Ile Val Lys Trp Asn Pro Pro Ser Leu Pro Asn Gly Asn  
625 630 635 640

Leu Ser Tyr Tyr Ile Val Arg Trp Gln Arg Gln Pro Gln Asp Gly Tyr  
645 650 655

Leu Tyr Arg His Asn Tyr Cys Ser Lys Asp Lys Ile Pro Ile Arg Lys  
660 665 670

Tyr Ala Asp Gly Thr Ile Asp Ile Glu Glu Val Thr Glu Asn Pro Lys  
675 680 685

Thr Glu Val Cys Gly Gly Glu Lys Gly Pro Cys Cys Ala Cys Pro Lys  
690 695 700 705

Thr Glu Ala Glu Lys Gln Ala Glu Lys Glu Glu Ala Glu Tyr Arg Lys  
705 710 715 720

Val Phe Glu Asn Phe Leu His Asn Ser Ile Phe Val Pro Arg Pro Glu  
725 730 735

Arg Lys Arg Arg Asp Val Met Gln Val Ala Asn Thr Thr Met Ser Ser  
740 745 750

Arg Ser Arg Asn Thr Thr Ala Ala Asp Thr Tyr Asn Ile Thr Asp Pro  
755 760 765

Glu Glu Leu Glu Thr Glu Tyr Pro Phe Phe Glu Ser Arg Val Asp Asn  
770 775 780

Lys Glu Arg Thr Val Ile Ser Asn Leu Arg Pro Phe Thr Leu Tyr Arg  
785 790 795 800

Ile Asp Ile His Ser Cys Asn His Glu Ala Glu Lys Leu Gly Cys Ser  
805 810 815

Ala Ser Asn Phe Val Phe Ala Arg Thr Met Pro Ala Glu Gly Ala Asp  
820 825 830

Asp Ile Pro Gly Pro Val Thr Trp Glu Pro Arg Pro Glu Asn Ser Ile  
835 840 845

Phe Leu Lys Trp Pro Glu Pro Glu Asn Pro Asn Gly Leu Ile Leu Met  
850 855 860

Tyr Glu Ile Lys Tyr Gly Ser Gln Val Glu Asp Gln Arg Glu Cys Val  
865 870 875 880

Ser Arg Gln Glu Tyr Arg Lys Tyr Gly Gly Ala Lys Leu Asn Arg Leu  
885 890 895

Asn Pro Gly Asn Tyr Thr Ala Arg Ile Gln Ala Thr Ser Leu Ser Gly  
900 905 910

Asn Gly Ser Trp Thr Asp Pro Val Phe Phe Tyr Val Gln Ala Lys Thr  
915 920 925

Gly Tyr Glu Asn Phe Ile His Leu Ile Ala Leu Pro Val Ala Val  
930 935 940

Leu Leu Ile Val Gly Gly Leu Val Ile Met Leu Tyr Val Phe His Arg  
945 950 955 960

Lys Arg Asn Asn Ser Arg Leu Gly Asn Gly Val Leu Tyr Ala Ser Val  
965 970 975

Asn Pro Glu Tyr Phe Ser Ala Ala Asp Val Tyr Val Pro Asp Glu Trp  
980 985 990

Glu Val Ala Arg Glu Lys Ile Thr Met Ser Arg Glu Leu Gly Gln Gly  
995 1000 1005

Ser Phe Gly Met Val Tyr Glu Gly Val Ala Lys Gly Val Val Lys  
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Asp Glu Pro Glu Thr Arg Val Ala Ile Lys Thr Val Asn Glu Ala  
1025 1030 1035

Ala Ser Met Arg Glu Arg Ile Glu Phe Leu Asn Glu Ala Ser Val  
1040 1045 1050

Met Lys Glu Phe Asn Cys His His Val Val Arg Leu Leu Gly Val  
1055 1060 1065

Val Ser Gln Gly Gln Pro Thr Leu Val Ile Met Glu Leu Met Thr  
1070 1075 1080

Arg Gly Asp Leu Lys Ser Tyr Leu Arg Ser Leu Arg Pro Glu Met  
1085 1090 1095

Glu Asn Asn Pro Val Leu Ala Pro Pro Ser Leu Ser Lys Met Ile  
1100 1105 1110

Gln Met Ala Gly Glu Ile Ala Asp Gly Met Ala Tyr Leu Asn Ala  
1115 1120 1125

Asn Lys Phe Val His Arg Asp Leu Ala Ala Arg Asn Cys Met Val  
1130 1135 1140

Ala Glu Asp Phe Thr Val Lys Ile Gly Asp Phe Gly Met Thr Arg  
1145 1150 1155

Asp Ile Tyr Glu Thr Asp Tyr Tyr Arg Lys Gly Gly Lys Gly Leu  
1160 1165 1170

Leu Pro Val Arg Trp Met Ser Pro Glu Ser Leu Lys Asp Gly Val  
1175 1180 1185

Phe Thr Thr Tyr Ser Asp Val Trp Ser Phe Gly Val Val Leu Trp  
1190 1195 1200

Glu Ile Ala Thr Leu Ala Glu Gln Pro Tyr Gln Gly Leu Ser Asn  
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Glu Gln Val Leu Arg Phe Val Met Glu Gly Gly Leu Leu Asp Lys  
 1220 1225 1230

Pro Asp Asn Cys Pro Asp Met Leu Phe Glu Leu Met Arg Met Cys  
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Trp Gln Tyr Asn Pro Lys Met Arg Pro Ser Phe Leu Glu Ile Ile  
 1250 1255 1260

Ser Ser Ile Lys Glu Glu Met Glu Pro Gly Phe Arg Glu Val Ser  
 1265 1270 1275

Phe Tyr Tyr Ser Glu Glu Asn Lys Leu Pro Glu Pro Glu Glu Leu  
 1280 1285 1290

Asp Leu Glu Pro Glu Asn Met Glu Ser Val Pro Leu Asp Pro Ser  
 1295 1300 1305

Ala Ser Ser Ser Ser Leu Pro Leu Pro Asp Arg His Ser Gly His  
 1310 1315 1320

Lys Ala Glu Asn Gly Pro Gly Pro Gly Val Leu Val Leu Arg Ala  
 1325 1330 1335

Ser Phe Asp Glu Arg Gln Pro Tyr Ala His Met Asn Gly Gly Arg  
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Lys Asn Glu Arg Ala Leu Pro Leu Pro Gln Ser Ser Thr Cys  
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gcc ttg ctg ctc tac ctc cac cat gcc aag tgg tcc cag gct gca ccc 100  
 Ala Leu Leu Leu Tyr Leu His His Ala Lys Trp Ser Gln Ala Ala Pro  
 15 20 25

atg gca gaa gga ggg ggg cag aat cat cac gaa gtg gtg aag ttc atg 148  
 Met Ala Glu Gly Gly Gln Asn His His Glu Val Val Lys Phe Met

30	35	40	
gat gtc tat cag cgc agc tac tgc cat cca atc gag acc ctg gtg gac Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp	45 50	55	196 60
atc ttc cag gag tac cct gat gag atc gag tac atc ttc aag cca tcc Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser	65	70	244 75
tgt gtg ccc ctg atg cga tgc ggg ggc tgc tgc aat gac gag ggc ctg Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu	80	85	292 90
gag tgt gtg ccc act gag gag tcc aac atc acc atg cag att atg cgg Glu Cys Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg	95	100	340 105
atc aaa cct cac caa ggc cag cac ata gga gag atg agc ttc cta cag Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln	110	115	388 120
cac aac aaa tgt gaa tgc aga cca aag aaa gat aga gca aga caa gaa His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu	125	130	436 140
aat ccc tgt ggg cct tgc tca gag cgg aga aag cat ttg ttt gta caa Asn Pro Cys Gly Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln	145	150	484 155
gat ccg cag acg tgt aaa tgt tcc tgc aaa aac aca gac tcg cgt tgc Asp Pro Gln Thr Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys	160	165	532 170
aag gcg agg cag ctt gag tta aac gaa cgt act tgc aga tgt gac aag Lys Ala Arg Gln Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys	175	180	580 185
ccg agg cgg tga gccgggcagg aggaaggagc ctccctcagg gtttcggaa Pro Arg Arg	190		632
ccagatct			640
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Tyr Leu His His Ala Lys Trp Ser Gln Ala Ala Pro Met Ala Glu Gly 20 25 30			
Gly Gly Gln Asn His His Glu Val Val Lys Phe Met Asp Val Tyr Gln 35 40 45			
Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp Ile Phe Gln Glu			

50

55

60

Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser Cys Val Pro Leu  
 65                    70                    75                    80

Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu Glu Cys Val Pro  
 85                    90                    95

Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg Ile Lys Pro His  
 100                  105                  110

Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln His Asn Lys Cys  
 115                  120                  125

Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu Asn Pro Cys Gly  
 130                  135                  140

Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln Asp Pro Gln Thr  
 145                  150                  155                  160

Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln  
 165                  170                  175

Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys Pro Arg Arg  
 180                  185                  190

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 Met Ala Cys Pro Trp Lys Phe Leu Phe Lys Val Lys  
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tcc tac caa agt gac ctg aaa gag gaa aag gac att aac aac aac gtg        339  
 Ser Tyr Gln Ser Asp Leu Lys Glu Lys Asp Ile Asn Asn Asn Val  
 15                  20                  25

aag aaa acc cct tgt gct ctc agc cca aca ata caa gat gac cct        387  
 Lys Lys Thr Pro Cys Ala Val Leu Ser Pro Thr Ile Gln Asp Asp Pro  
 30                  35                  40

aag agt cac caa aat ggc tcc ccg cag ctc ctc act ggg aca gca cag        435

Lys Ser His Gln Asn Gly Ser Pro Gln Leu Leu Thr Gly Thr Ala Gln			
45	50	55	60
aat gtt cca gaa tcc ctg gac aag ctg cat gtg aca tcg acc cgt cca			483
Asn Val Pro Glu Ser Leu Asp Lys Leu His Val Thr Ser Thr Arg Pro			
65	70	75	
cag tat gtg agg atc aaa aac tgg ggc agt gga gag att ttg cat gac			531
Gln Tyr Val Arg Ile Lys Asn Trp Gly Ser Gly Glu Ile Leu His Asp			
80	85	90	
act ctt cac cac aag gcc aca tcg gat ttc act tgc aag tcc aag tct			579
Thr Leu His His Lys Ala Thr Ser Asp Phe Thr Cys Lys Ser Lys Ser			
95	100	105	
tgc ttg ggg tcc atc atg aac ccc aag agt ttg acc aga gga ccc aga			627
Cys Leu Gly Ser Ile Met Asn Pro Lys Ser Leu Thr Arg Gly Pro Arg			
110	115	120	
gac aag cct acc cct ctg gag gag ctc ctg cct cat gcc att gag ttc			675
Asp Lys Pro Thr Pro Leu Glu Glu Leu Leu Pro His Ala Ile Glu Phe			
125	130	135	140
atc aac cag tat tat ggc tcc ttt aaa gag gca aaa ata gag gaa cat			723
Ile Asn Gln Tyr Tyr Gly Ser Phe Lys Glu Ala Lys Ile Glu Glu His			
145	150	155	
ctg gcc agg ctg gaa gct gta aca aag gaa ata gaa aca aca gga acc			771
Leu Ala Arg Leu Glu Ala Val Thr Lys Glu Ile Glu Thr Thr Gly Thr			
160	165	170	
tac cag ctc act ctg gat gag ctc atc ttt gcc acc aag atg gcc tgg			819
Tyr Gln Leu Thr Leu Asp Glu Leu Ile Phe Ala Thr Lys Met Ala Trp			
175	180	185	
agg aat gcc cct cgc tgc atc ggc agg atc cag tgg tcc aac ctg cag			867
Arg Asn Ala Pro Arg Cys Ile Gly Arg Ile Gln Trp Ser Asn Leu Gln			
190	195	200	
gtc ttt gac gct cgg aac tgt agc aca gca cag gaa atg ttt cag cac			915
Val Phe Asp Ala Arg Asn Cys Ser Thr Ala Gln Glu Met Phe Gln His			
205	210	215	220
atc tgc aga cac ata ctt tat gcc acc aac aat ggc aac atc agg tcg			963
Ile Cys Arg His Ile Leu Tyr Ala Thr Asn Asn Gly Asn Ile Arg Ser			
225	230	235	
gcc atc act gtg ttc ccc cag cgg agt gac ggc aaa cat gac ttc agg			1011
Ala Ile Thr Val Phe Pro Gln Arg Ser Asp Gly Lys His Asp Phe Arg			
240	245	250	
ctc tgg aat tca cag ctc atc cgg tac gct ggc tac cag atg ccc gat			1059
Leu Trp Asn Ser Gln Leu Ile Arg Tyr Ala Gly Tyr Gln Met Pro Asp			
255	260	265	
ggc acc atc aga ggg gat gct gcc acc ttg gag ttc acc cag ttg tgc			1107
Gly Thr Ile Arg Gly Asp Ala Ala Thr Leu Glu Phe Thr Gln Leu Cys			
270	275	280	
atc gac cta ggc tgg aag ccc cgc tat ggc cgc ttt gat gtg ctg cct			1155

Ile Asp Leu Gly Trp Lys Pro Arg Tyr Gly Arg Phe Asp Val Leu Pro 285 290 295 300		
ctg gtc ttg caa gct gat ggt caa gat cca gag gtc ttt gaa atc cct Leu Val Leu Gln Ala Asp Gly Gln Asp Pro Glu Val Phe Glu Ile Pro 305 310 315		1203
cct gat ctt gtg ttg gag gtg acc atg gag cat ccc aag tac gag tgg Pro Asp Leu Val Leu Glu Val Thr Met Glu His Pro Lys Tyr Glu Trp 320 325 330		1251
ttc cag gag ctc ggg ttg aag tgg tat gca ctg cct gcc gtg gcc aac Phe Gln Glu Leu Gly Leu Lys Trp Tyr Ala Leu Pro Ala Val Ala Asn 335 340 345		1299
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ggt tgg tac atg ggc acc gag att gga gtt cga gac ttc tgt gac aca Gly Trp Tyr Met Gly Thr Glu Ile Gly Val Arg Asp Phe Cys Asp Thr 365 370 375 380		1395
cag cgc tac aac atc ctg gag gaa gtg ggc cga agg atg ggc ctg gag Gln Arg Tyr Asn Ile Leu Glu Glu Val Gly Arg Arg Met Gly Leu Glu 385 390 395		1443
acc cac aca ctg gcc tcc ctc tgg aaa gac cgg gct gtc acg gag atc Thr His Thr Leu Ala Ser Leu Trp Lys Asp Arg Ala Val Thr Glu Ile 400 405 410		1491
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Leu His Ser Phe Gln Lys Gln Asn Val Thr Ile Met Asp His His Thr  
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Glu Lys Asp Lys	Tyr Ile Leu Gln Gly	Val Thr Ser Trp Gly	Leu	
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Gly Cys Ala Arg	Pro Asn Lys Pro Gly	Val Tyr Ala Arg Val	Ser	
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20	25	30	

Ser Asp Ala Glu Gly Thr Ala Val Ala Pro Pro Thr Val Thr Pro Val			
35	40	45	

Pro Ser Leu Glu Ala Pro Ser Glu Gln Ala Pro Thr Glu Gln Arg Pro			
50	55	60	

Gly Val Gln Glu Cys Tyr His Gly Asn Gly Gln Ser Tyr Gln Gly Thr			
65	70	75	80

Tyr Phe Ile Thr Val Thr Gly Arg Thr Cys Gln Ala Trp Ser Ser Met			
85	90	95	

Thr Pro His Ser His Ser Arg Thr Pro Ala Tyr Tyr Pro Asn Ala Gly			
100	105	110	

Leu Ile Lys Asn Tyr Cys Arg Asn Pro Asp Pro Val Ala Ala Pro Trp			
115	120	125	

Cys Tyr Thr Thr Asp Pro Ser Val Arg Trp Glu Tyr Cys Asn Leu Thr  
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Arg Cys Ser Asp Ala Glu Trp Thr Ala Phe Val Pro Pro Asn Val Ile  
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Leu Ala Pro Ser Leu Glu Ala Phe Phe Glu Gln Ala Leu Thr Glu Glu  
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Thr Pro Gly Val Gln Asp Cys Tyr Tyr His Tyr Gly Gln Ser Tyr Arg  
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Gly Thr Tyr Ser Thr Thr Val Thr Gly Arg Thr Cys Gln Ala Trp Ser  
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Ser Met Thr Pro His Gln His Ser Arg Thr Pro Glu Asn Tyr Pro Asn  
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Ala Gly Leu Thr Arg Asn Tyr Cys Arg Asn Pro Asp Ala Glu Ile Arg  
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Pro Trp Cys Tyr Thr Met Asp Pro Ser Val Arg Trp Glu Tyr Cys Asn  
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Val Val Pro Asp Pro Ser Thr Glu Ala Ser Ser Glu Glu Ala Pro Thr  
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Glu Gln Ser Pro Gly Val Gln Asp Cys Tyr His Gly Asp Gly Gln Ser  
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Tyr Arg Gly Ser Phe Ser Thr Thr Val Thr Gly Arg Thr Cys Gln Ser  
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Trp Ser Ser Met Thr Pro His Trp His Gln Arg Thr Thr Glu Tyr Tyr  
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Pro Asn Gly Gly Leu Thr Arg Asn Tyr Cys Arg Asn Pro Asp Ala Glu  
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Ile Ser Pro Trp Cys Tyr Thr Met Asp Pro Asn Val Arg Trp Glu Tyr  
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Cys Asn Leu Thr Gln Cys Pro Val Thr Glu Ser Ser Val Leu Ala Thr  
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His Trp His Gln Arg Thr Thr Glu Tyr Tyr Pro Asn Gly Gly Leu Thr  
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Pro Val Met Glu Ser Thr Leu Leu Thr Thr Pro Thr Val Val Pro Val  
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Thr Pro His Trp His Arg Arg Ile Pro Leu Tyr Tyr Pro Asn Ala Gly  
545 550 555 560

Leu Thr Arg Asn Tyr Cys Arg Asn Pro Asp Ala Glu Ile Arg Pro Trp  
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Cys Tyr Thr Met Asp Pro Ser Val Arg Trp Glu Tyr Cys Asn Leu Thr  
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Arg Cys Pro Val Thr Glu Ser Ser Val Leu Thr Thr Pro Thr Val Ala  
595 600 605

Pro Val Pro Ser Thr Glu Ala Pro Ser Glu Gln Ala Pro Pro Glu Lys  
610 615 620

Ser Pro Val Val Gln Asp Cys Tyr His Gly Asp Gly Arg Ser Tyr Arg  
625 630 635 640

Gly Ile Ser Ser Thr Thr Val Thr Gly Arg Thr Cys Gln Ser Trp Ser  
645 650 655

Ser Met Ile Pro His Trp His Gln Arg Thr Pro Glu Asn Tyr Pro Asn  
660 665 670

Ala Gly Leu Thr Glu Asn Tyr Cys Arg Asn Pro Asp Ser Gly Lys Gln  
675 680 685

Pro Trp Cys Tyr Thr Thr Asp Pro Cys Val Arg Trp Glu Tyr Cys Asn  
690 695 700

Leu Thr Gln Cys Ser Glu Thr Glu Ser Gly Val Leu Glu Thr Pro Thr  
705 710 715 720

Val Val Pro Val Pro Ser Met Glu Ala His Ser Glu Ala Ala Pro Thr  
725 730 735

Glu Gln Thr Pro Val Val Arg Gln Cys Tyr His Gly Asn Gly Gln Ser  
740 745 750

Tyr Arg Gly Thr Phe Ser Thr Thr Val Thr Gly Arg Thr Cys Gln Ser  
755 760 765

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785 790 795 800

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Cys Asn Leu Thr Arg Cys Ser Asp Thr Glu Gly Thr Val Val Ala Pro  
820 825 830

Pro Thr Val Ile Gln Val Pro Ser Leu Gly Pro Pro Ser Glu Gln Asp  
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850 855 860

Val Thr Gly Thr Pro Cys Gln Glu Trp Ala Ala Gln Glu Pro His Arg  
865 870 875 880

His Ser Thr Phe Ile Pro Gly Thr Asn Lys Trp Ala Gly Leu Glu Lys  
885 890 895

Asn Tyr Cys Arg Asn Pro Asp Gly Asp Ile Asn Gly Pro Trp Cys Tyr  
900 905 910

Thr Met Asn Pro Arg Lys Leu Phe Asp Tyr Cys Asp Ile Pro Leu Cys  
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Ala Ser Ser Ser Phe Asp Cys Gly Lys Pro Gln Val Glu Pro Lys Lys  
930 935 940

Cys Pro Gly Ser Ile Val Gly Gly Cys Val Ala His Pro His Ser Trp  
945 950 955 960

Pro Trp Gln Val Ser Leu Arg Thr Arg Phe Gly Lys His Phe Cys Gly  
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Gly Thr Leu Ile Ser Pro Glu Trp Val Leu Thr Ala Ala His Cys Leu  
980 985 990

Lys Lys Ser Ser Arg Pro Ser Ser Tyr Lys Val Ile Leu Gly Ala His  
995 1000 1005

Gln Glu Val Asn Leu Glu Ser His Val Gln Glu Ile Glu Val Ser  
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Arg Leu Phe Leu Glu Pro Thr Gln Ala Asp Ile Ala Leu Leu Lys  
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Leu Ser Arg Pro Ala Val Ile Thr Asp Lys Val Met Pro Ala Cys  
1040 1045 1050

Leu Pro Ser Pro Asp Tyr Met Val Thr Ala Arg Thr Glu Cys Tyr  
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Ile Thr Gly Trp Gly Glu Thr Gln Gly Thr Phe Gly Thr Gly Leu  
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Leu Lys Glu Ala Gln Leu Leu Val Ile Glu Asn Glu Val Cys Asn  
1085 1090 1095

His Tyr Lys Tyr Ile Cys Ala Glu His Leu Ala Arg Gly Thr Asp  
1100 1105 1110

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Phe Glu Lys  
1115 1120 1125

Asp Lys Tyr Ile Leu Gln Gly Val Thr Ser Trp Gly Leu Gly Cys  
1130 1135 1140

Ala Arg Pro Asn Lys Pro Gly Val Tyr Ala Arg Val Ser Arg Phe  
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Val Thr Trp Ile Glu Gly Met Met Arg Asn Asn  
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Met Asp Pro Pro Arg Pro Ala Leu Leu Ala Leu  
1 5 10

ctg gcg ctg cct gcg ctg ctg ctg ctg ctg gcg ggc gcc agg gcc  
Leu Ala Leu Pro Ala Leu Leu Leu Leu Leu Ala Gly Ala Arg Ala  
15 20 25 159

gaa gag gaa atg ctg gaa aat gtc agc ctg gtc tgt cca aaa gat gcg 207  
Glu Glu Glu Met Leu Glu Asn Val Ser Leu Val Cys Pro Lys Asp Ala  
30 35 40

acc cga ttc aag cac ctc cgg aag tac aca tac aac tat gag gct gag 255  
Thr Arg Phe Lys His Leu Arg Lys Tyr Thr Tyr Asn Tyr Glu Ala Glu  
45 50 55

agt tcc agt gga gtc cct ggg act gct gat tca aga agt gcc acc agg 303  
Ser Ser Ser Gly Val Pro Gly Thr Ala Asp Ser Arg Ser Ala Thr Arg  
60 65 70 75

atc aac tgc aag gtt gag ctg gag gtt ccc cag ctc tgc agc ttc atc 351  
Ile Asn Cys Lys Val Glu Leu Glu Val Pro Gln Leu Cys Ser Phe Ile  
80 85 90

ctg aag acc agc cag tgc atc ctg aaa gag gtg tat ggc ttc aac cct 399  
Leu Lys Thr Ser Gln Cys Ile Leu Lys Glu Val Tyr Gly Phe Asn Pro  
95 100 105

gag ggc aaa gcc ttg ctg aag aaa acc aag aac tct gag gag ttt gct 447

Glu	Gly	Lys	Ala	Leu	Leu	Lys	Thr	Lys	Asn	Ser	Glu	Glu	Phe	Ala	110	115	120		
gca	gcc	atg	tcc	agg	tat	gag	ctc	aag	ctg	gcc	att	cca	gaa	ggg	aag			495	
Ala	Ala	Met	Ser	Arg	Tyr	Glu	Leu	Lys	Leu	Ala	Ile	Pro	Glu	Gly	Lys	125	130	135	
cag	gtt	ttc	ctt	tac	ccg	gag	aaa	gat	gaa	cct	act	tac	atc	ctg	aac			543	
Gln	Val	Phe	Leu	Tyr	Pro	Glu	Lys	Asp	Glu	Pro	Thr	Tyr	Ile	Leu	Asn	140	145	150	155
atc	aag	agg	ggc	atc	att	tct	gcc	ctc	ctg	gtt	ccc	cca	gag	aca	gaa			591	
Ile	Lys	Arg	Gly	Ile	Ile	Ser	Ala	Leu	Leu	Val	Pro	Pro	Glu	Thr	Glu	160	165	170	
gaa	gcc	aag	caa	gtg	ttg	ttt	ctg	gat	acc	gtg	tat	gga	aac	tgc	tcc			639	
Glu	Ala	Lys	Gln	Val	Leu	Phe	Leu	Asp	Thr	Val	Tyr	Gly	Asn	Cys	Ser	175	180	185	
act	cac	ttt	acc	gtc	aag	acg	agg	aag	ggc	aat	gtg	gca	aca	gaa	ata			687	
Thr	His	Phe	Thr	Val	Lys	Thr	Arg	Lys	Gly	Asn	Val	Ala	Thr	Glu	Ile	190	195	200	
tcc	act	gaa	aga	gac	ctg	ggg	cag	tgt	gat	cgc	ttc	aag	ccc	atc	cgc			735	
Ser	Thr	Glu	Arg	Asp	Leu	Gly	Gln	Cys	Asp	Arg	Phe	Lys	Pro	Ile	Arg	205	210	215	
aca	ggc	atc	agc	cca	ctt	gct	ctc	atc	aaa	ggc	atg	acc	cgc	ccc	ttg			783	
Thr	Gly	Ile	Ser	Pro	Leu	Ala	Leu	Ile	Lys	Gly	Met	Thr	Arg	Pro	Leu	220	225	230	235
tca	act	ctg	atc	agc	agc	cag	tcc	tgt	cag	tac	aca	ctg	gac	gct				831	
Ser	Thr	Leu	Ile	Ser	Ser	Gln	Ser	Cys	Gln	Tyr	Thr	Leu	Asp	Ala	240	245	250		
aag	agg	aag	cat	gtg	gca	gaa	gcc	atc	tgc	aag	gag	caa	cac	ctc	ttc			879	
Lys	Arg	Lys	His	Val	Ala	Glu	Ala	Ile	Cys	Lys	Glu	Gln	His	Leu	Phe	255	260	265	
ctg	cct	ttc	tcc	tac	aag	aat	aag	tat	ggg	atg	gta	gca	caa	gtg	aca			927	
Leu	Pro	Phe	Ser	Tyr	Lys	Asn	Lys	Tyr	Gly	Met	Val	Ala	Gln	Val	Thr	270	275	280	
cag	act	ttg	aaa	ctt	gaa	gac	aca	cca	aag	atc	aac	agc	cgc	ttc	ttt			975	
Gln	Thr	Leu	Lys	Leu	Glu	Asp	Thr	Pro	Lys	Ile	Asn	Ser	Arg	Phe	Phe	285	290	295	
ggt	gaa	ggt	act	aag	aag	atg	ggc	ctc	gca	ttt	gag	agc	acc	aaa	tcc			1023	
Gly	Glu	Gly	Thr	Lys	Lys	Met	Gly	Leu	Ala	Phe	Glu	Ser	Thr	Lys	Ser	300	305	310	315
aca	tca	cct	cca	aag	cag	gcc	gaa	gct	gtt	ttg	aag	act	gtc	cag	gaa			1071	
Thr	Ser	Pro	Pro	Lys	Gln	Ala	Glu	Ala	Val	Leu	Lys	Thr	Val	Gln	Glu	320	325	330	
ctg	aaa	aaa	cta	acc	atc	tct	gag	caa	aat	atc	cag	aga	gct	aat	ctc			1119	
Leu	Lys	Leu	Thr	Ile	Ser	Glu	Gln	Asn	Ile	Gln	Arg	Ala	Asn	Leu	335	340	345		
ttc	aat	aag	ctg	gtt	act	gag	ctg	aga	ggc	ctc	agt	gat	gaa	gca	gtc			1167	

Phe Asn Lys Leu Val Thr Glu Leu Arg Gly Leu Ser Asp Glu Ala Val			
350	355	360	
aca tct ctc ttg cca cag ctg att gag gtg tcc agc ccc atc act tta		1215	
Thr Ser Leu Leu Pro Gln Leu Ile Glu Val Ser Ser Pro Ile Thr Leu			
365	370	375	
caa gcc ttg gtt cag tgt gga cag cct cag tgc tcc act cac atc ctc		1263	
Gln Ala Leu Val Gln Cys Gly Gln Pro Gln Cys Ser Thr His Ile Leu			
380	385	390	395
cag tgg ctg aaa cgt gtg cat gcc aac ccc ctt ctg ata gat gtg gtc		1311	
Gln Trp Leu Lys Arg Val His Ala Asn Pro Leu Leu Ile Asp Val Val			
400	405	410	
acc tac ctg gtg gcc ctg atc ccc gag ccc tca gca cag cag ctg cga		1359	
Thr Tyr Leu Val Ala Leu Ile Pro Glu Pro Ser Ala Gln Gln Leu Arg			
415	420	425	
gag atc ttc aac atg gcg agg gat cag cgc agc cga gcc acc ttg tat		1407	
Glu Ile Phe Asn Met Ala Arg Asp Gln Arg Ser Arg Ala Thr Leu Tyr			
430	435	440	
gcg ctg agc cac gcg gtc aac aac tat cat aag aca aac cct aca ggg		1455	
Ala Leu Ser His Ala Val Asn Asn Tyr His Lys Thr Asn Pro Thr Gly			
445	450	455	
acc cag gag ctg ctg gac att gct aat tac ctg atg gaa cag att caa		1503	
Thr Gln Glu Leu Leu Asp Ile Ala Asn Tyr Leu Met Glu Gln Ile Gln			
460	465	470	475
gat gac tgc act ggg gat gaa gat tac acc tat ttg att ctg cgg gtc		1551	
Asp Asp Cys Thr Gly Asp Glu Asp Tyr Thr Tyr Leu Ile Leu Arg Val			
480	485	490	
att gga aat atg ggc caa acc atg gag cag tta act cca gaa ctc aag		1599	
Ile Gly Asn Met Gly Gln Thr Met Glu Gln Leu Thr Pro Glu Leu Lys			
495	500	505	
tct tca atc ctg aaa tgt gtc caa agt aca aag cca tca ctg atg atc		1647	
Ser Ser Ile Leu Lys Cys Val Gln Ser Thr Lys Pro Ser Leu Met Ile			
510	515	520	
cag aaa gct gcc atc cag gct ctg cgg aaa atg gag cct aaa gac aag		1695	
Gln Lys Ala Ala Ile Gln Ala Leu Arg Lys Met Glu Pro Lys Asp Lys			
525	530	535	
gac cag gag gtt ctt ctt cag act ttc ctt gat gat gct tct ccg gga		1743	
Asp Gln Glu Val Leu Leu Gln Thr Phe Leu Asp Asp Ala Ser Pro Gly			
540	545	550	555
gat aag cga ctg gct gcc tat ctt atg ttg atg agg agt cct tca cag		1791	
Asp Lys Arg Leu Ala Ala Tyr Leu Met Leu Met Arg Ser Pro Ser Gln			
560	565	570	
gca gat att aac aaa att gtc caa att cta cca tgg gaa cag aat gag		1839	
Ala Asp Ile Asn Lys Ile Val Gln Ile Leu Pro Trp Glu Gln Asn Glu			
575	580	585	
caa gtg aag aac ttt gtg gct tcc cat att gcc aat atc ttg aac tca		1887	

Gln Val Lys Asn Phe Val Ala Ser His Ile Ala Asn Ile Leu Asn Ser 590 595 600	
gaa gaa ttg gat atc caa gat ctg aaa aag tta gtg aaa gaa gtt ctg Glu Glu Leu Asp Ile Gln Asp Leu Lys Lys Leu Val Lys Glu Val Leu 605 610 615	1935
aaa gaa tct caa ctt cca act gtc atg gac ttc aga aaa ttc tct cgg Lys Glu Ser Gln Leu Pro Thr Val Met Asp Phe Arg Lys Phe Ser Arg 620 625 630 635	1983
aac tat caa ctc tac aaa tct gtt tct att cca tca ctt gac cca gcc Asn Tyr Gln Leu Tyr Lys Ser Val Ser Ile Pro Ser Leu Asp Pro Ala 640 645 650	2031
tca gcc aaa ata gaa ggg aat ctt ata ttt gat cca aat aac tac ctt Ser Ala Lys Ile Glu Gly Asn Leu Ile Phe Asp Pro Asn Asn Tyr Leu 655 660 665	2079
cct aaa gaa agc atg ctg aaa act acc ctc act gcc ttt gga ttt gct Pro Lys Glu Ser Met Leu Lys Thr Thr Leu Thr Ala Phe Gly Phe Ala 670 675 680	2127
tca gct gac ctc atc gag att ggc ttg gaa gga aaa ggc ttt gag cca Ser Ala Asp Leu Ile Glu Ile Gly Leu Glu Gly Lys Gly Phe Glu Pro 685 690 695	2175
aca ttg gaa gct ctt ttt ggg aag caa gga ttt ttc cca gac agt gtc Thr Leu Glu Ala Leu Phe Gly Lys Gln Gly Phe Phe Pro Asp Ser Val 700 705 710 715	2223
aac aaa gct ttg tac tgg gtt aat ggt caa gtt cct gat ggt gtc tct Asn Lys Ala Leu Tyr Trp Val Asn Gly Gln Val Pro Asp Gly Val Ser 720 725 730	2271
aag gtc tta gtg gac cac ttt ggc tat acc aaa gat gat aaa cat gag Lys Val Leu Val Asp His Phe Gly Tyr Thr Lys Asp Asp Lys His Glu 735 740 745	2319
cag gat atg gta aat gga ata atg ctc agt gtt gag aag ctg att aaa Gln Asp Met Val Asn Gly Ile Met Leu Ser Val Glu Lys Leu Ile Lys 750 755 760	2367
gat ttg aaa tcc aaa gaa gtc ccg gaa gcc aga gcc tac ctc cgc atc Asp Leu Lys Ser Lys Glu Val Pro Glu Ala Arg Ala Tyr Leu Arg Ile 765 770 775	2415
ttg gga gag gag ctt ttt gcc agt ctc cat gac ctc cag ctc ctg Leu Gly Glu Glu Leu Gly Phe Ala Ser Leu His Asp Leu Gln Leu Leu 780 785 790 795	2463
gga aag ctg ctt ctg atg ggt gcc cgc act ctg cag ggg atc ccc cag Gly Lys Leu Leu Leu Met Gly Ala Arg Thr Leu Gln Gly Ile Pro Gln 800 805 810	2511
atg att gga gag gtc atc agg aag ggc tca aag aat gac ttt ttt ctt Met Ile Gly Glu Val Ile Arg Lys Gly Ser Lys Asn Asp Phe Phe Leu 815 820 825	2559
cac tac atc ttc atg gag aat gcc ttt gaa ctc ccc act gga gct gga	2607

His Tyr Ile Phe Met Glu Asn Ala Phe Glu Leu Pro Thr Gly Ala Gly		
830	835	840
tta cag ttg caa ata tct tca tct gga gtc att gct ccc gga gcc aag		2655
Leu Gln Leu Gln Ile Ser Ser Ser Gly Val Ile Ala Pro Gly Ala Lys		
845	850	855
gct gga gta aaa ctg gaa gta gcc aac atg cag gct gaa ctg gtg gca		2703
Ala Gly Val Lys Leu Glu Val Ala Asn Met Gln Ala Glu Leu Val Ala		
860	865	870
aaa ccc tcc gtg tct gtg gag ttt gtg aca aat atg ggc atc atc att		2751
Lys Pro Ser Val Ser Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile		
880	885	890
ccg gac ttc gct agg agt ggg gtc cag atg aac acc aac ttc ttc cac		2799
Pro Asp Phe Ala Arg Ser Gly Val Gln Met Asn Thr Asn Phe Phe His		
895	900	905
gag tcg ggt ctg gag gct cat gtt gcc cta aaa cct ggg aag ctg aag		2847
Glu Ser Gly Leu Glu Ala His Val Ala Leu Lys Pro Gly Lys Leu Lys		
910	915	920
ttt atc att cct tcc cca aag aga cca gtc aag ctg ctc agt gga ggc		2895
Phe Ile Ile Pro Ser Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly		
925	930	935
aac aca tta cat ttg gtc tct acc acc aaa acg gag gtg atc cca cct		2943
Asn Thr Leu His Leu Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro		
940	945	950
955		
ctc att gag aac agg cag tcc tgg tca gtt tgc aag caa gtc ttt cct		2991
Leu Ile Glu Asn Arg Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro		
960	965	970
ggc ctg aat tac tgc acc tca ggc gct tac tcc aac gcc agc tcc aca		3039
Gly Leu Asn Tyr Cys Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr		
975	980	985
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Asp Ser Ala Ser Tyr Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu		
990	995	1000
gaa ctg agg cct aca gga gag att gag cag tat tct gtc agc gca		3132
Glu Leu Arg Pro Thr Gly Glu Ile Glu Gln Tyr Ser Val Ser Ala		
1005	1010	1015
acc tat gag ctc cag aga gag gac aga gcc ttg gtg gat acc ctg		3177
Thr Tyr Glu Leu Gln Arg Glu Asp Arg Ala Leu Val Asp Thr Leu		
1020	1025	1030
aag ttt gta actcaa gca gaa ggt gcg aag cag act gag gct acc		3222
Lys Phe Val Thr Gln Ala Glu Gly Ala Lys Gln Thr Glu Ala Thr		
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atg aca ttc aaa tat aat cgg cag agt atg acc ttg tcc agt gaa		3267
Met Thr Phe Lys Tyr Asn Arg Gln Ser Met Thr Leu Ser Ser Glu		
1050	1055	1060
gtc caa att ccg gat ttt gat gtt gac ctc gga aca atc ctc aga		3312

Val	Gln	Ile	Pro	Asp	Phe	Asp	Val	Asp	Leu	Gly	Thr	Ile	Leu	Arg	
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Val	Asn	Asp	Glu	Ser	Thr	Glu	Gly	Lys	Thr	Ser	Tyr	Arg	Leu	Thr	
1080							1085					1090			
ctg	gac	att	cag	aac	aag	aaa	att	act	gag	gtc	gcc	ctc	atg	ggc	3402
Leu	Asp	Ile	Gln	Asn	Lys	Lys	Ile	Thr	Glu	Val	Ala	Leu	Met	Gly	
1095							1100					1105			
cac	cta	agt	tgt	gac	aca	aag	gaa	gaa	aga	aaa	atc	aag	ggt	gtt	3447
His	Leu	Ser	Cys	Asp	Thr	Lys	Glu	Glu	Arg	Lys	Ile	Lys	Gly	Val	
1110							1115					1120			
att	tcc	ata	ccc	cgt	ttg	caa	gca	gaa	gcc	aga	agt	gag	atc	ctc	3492
Ile	Ser	Ile	Pro	Arg	Leu	Gln	Ala	Glu	Ala	Arg	Ser	Glu	Ile	Leu	
1125							1130					1135			
gcc	cac	tgg	tcg	cct	gcc	aaa	ctg	ctt	ctc	caa	atg	gac	tca	tct	3537
Ala	His	Trp	Ser	Pro	Ala	Lys	Leu	Leu	Leu	Gln	Met	Asp	Ser	Ser	
1140							1145					1150			
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Ala	Thr	Ala	Tyr	Gly	Ser	Thr	Val	Ser	Lys	Arg	Val	Ala	Trp	His	
1155							1160					1165			
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Tyr	Asp	Glu	Glu	Lys	Ile	Glu	Phe	Glu	Trp	Asn	Thr	Gly	Thr	Asn	
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Val	Asp	Thr	Lys	Lys	Met	Thr	Ser	Asn	Phe	Pro	Val	Asp	Leu	Ser	
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Asp	Tyr	Pro	Lys	Ser	Leu	His	Met	Tyr	Ala	Asn	Arg	Leu	Leu	Asp	
1200							1205					1210			
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His	Arg	Val	Pro	Gln	Thr	Asp	Met	Thr	Phe	Arg	His	Val	Gly	Ser	
1215							1220					1225			
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Lys	Leu	Ile	Val	Ala	Met	Ser	Ser	Trp	Leu	Gln	Lys	Ala	Ser	Gly	
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Ser	Leu	Pro	Tyr	Thr	Gln	Thr	Leu	Gln	Asp	His	Leu	Asn	Ser	Leu	
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Lys	Glu	Phe	Asn	Leu	Gln	Asn	Met	Gly	Leu	Pro	Asp	Phe	His	Ile	
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Pro	Glu	Asn	Leu	Phe	Leu	Lys	Ser	Asp	Gly	Arg	Val	Lys	Tyr	Thr	
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Pro	Ala	Leu	His	Phe	Lys	Ser	Val	Gly	Phe	His	Leu	Pro	Ser	Arg	
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Glu	Phe	Gln	Val	Pro	Thr	Phe	Thr	Ile	Pro	Lys	Leu	Tyr	Gln	Leu	
1335							1340				1345				
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Gln	Val	Pro	Leu	Leu	Gly	Val	Leu	Asp	Leu	Ser	Thr	Asn	Val	Tyr	
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Ser	Thr	Asp	His	Phe	Ser	Leu	Arg	Ala	Arg	Tyr	His	Met	Lys	Ala	
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Asp	Ser	Val	Val	Asp	Leu	Leu	Ser	Tyr	Asn	Val	Gln	Gly	Ser	Gly	
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Glu	Thr	Thr	Tyr	Asp	His	Lys	Asn	Thr	Phe	Thr	Leu	Ser	Cys	Asp	
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Gly	Ser	Leu	Arg	His	Lys	Phe	Leu	Asp	Ser	Asn	Ile	Lys	Phe	Ser	
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His	Val	Glu	Lys	Leu	Gly	Asn	Asn	Pro	Val	Ser	Lys	Gly	Leu	Leu	
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Ile	Phe	Asp	Ala	Ser	Ser	Ser	Trp	Gly	Pro	Gln	Met	Ser	Ala	Ser	
1455							1460				1465				
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Val	His	Leu	Asp	Ser	Lys	Lys	Lys	Gln	His	Leu	Phe	Val	Lys	Glu	
1470							1475				1480				
gtc	aag	att	gat	ggg	cag	ttc	aga	gtc	tct	tcg	ttc	tat	gct	aaa	4572
Val	Lys	Ile	Asp	Gly	Gln	Phe	Arg	Val	Ser	Ser	Phe	Tyr	Ala	Lys	
1485							1490				1495				
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Gly	Thr	Tyr	Gly	Leu	Ser	Cys	Gln	Arg	Asp	Pro	Asn	Thr	Gly	Arg	
1500							1505				1510				
ctc	aat	gga	gag	tcc	aac	ctg	agg	ttt	aac	tcc	tcc	tac	ctc	caa	4662

Leu Asn Gly Glu Ser Asn Leu Arg Phe Asn Ser Ser Tyr Leu Gln			
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Gly Thr Asn Gln Ile Thr Gly Arg Tyr Glu Asp Gly Thr Leu Ser			
1530	1535	1540	
ctc acc tcc acc tct gat ctg caa agt ggc atc att aaa aat act			4752
Leu Thr Ser Thr Ser Asp Leu Gln Ser Gly Ile Ile Lys Asn Thr			
1545	1550	1555	
gct tcc cta aag tat gag aac tac gag ctg act tta aaa tct gac			4797
Ala Ser Leu Lys Tyr Glu Asn Tyr Glu Leu Thr Leu Lys Ser Asp			
1560	1565	1570	
acc aat ggg aag tat aag aac ttt gcc act tct aac aag atg gat			4842
Thr Asn Gly Lys Tyr Lys Asn Phe Ala Thr Ser Asn Lys Met Asp			
1575	1580	1585	
atg acc ttc tct aag caa aat gca ctg ctg cgt tct gaa tat cag			4887
Met Thr Phe Ser Lys Gln Asn Ala Leu Leu Arg Ser Glu Tyr Gln			
1590	1595	1600	
gct gat tac gag tca ttg agg ttc ttc agc ctg ctt tct gga tca			4932
Ala Asp Tyr Glu Ser Leu Arg Phe Phe Ser Leu Leu Ser Gly Ser			
1605	1610	1615	
cta aat tcc cat ggt ctt gag tta aat gct gac atc tta ggc act			4977
Leu Asn Ser His Gly Leu Glu Leu Asn Ala Asp Ile Leu Gly Thr			
1620	1625	1630	
gac aaa att aat agt ggt gct cac aag gcg aca cta agg att ggc			5022
Asp Lys Ile Asn Ser Gly Ala His Lys Ala Thr Leu Arg Ile Gly			
1635	1640	1645	
caa gat gga ata tct acc agt gca acg acc aac ttg aag tgt agt			5067
Gln Asp Gly Ile Ser Thr Ser Ala Thr Thr Asn Leu Lys Cys Ser			
1650	1655	1660	
ctc ctg gtg ctg gag aat gag ctg aat gca gag ctt ggc ctc tct			5112
Leu Leu Val Leu Glu Asn Glu Leu Asn Ala Glu Leu Gly Leu Ser			
1665	1670	1675	
ggg gca tct atg aaa tta aca aca aat ggc cgc ttc agg gaa cac			5157
Gly Ala Ser Met Lys Leu Thr Thr Asn Gly Arg Phe Arg Glu His			
1680	1685	1690	
aat gca aaa ttc agt ctg gat ggg aaa gcc gcc ctc aca gag cta			5202
Asn Ala Lys Phe Ser Leu Asp Gly Lys Ala Ala Leu Thr Glu Leu			
1695	1700	1705	
tca ctg gga agt gct tat cag gcc atg att ctg ggt gtc gac agc			5247
Ser Leu Gly Ser Ala Tyr Gln Ala Met Ile Leu Gly Val Asp Ser			
1710	1715	1720	
aaa aac att ttc aac ttc aag gtc agt caa gaa gga ctt aag ctc			5292
Lys Asn Ile Phe Asn Phe Lys Val Ser Gln Glu Gly Leu Lys Leu			
1725	1730	1735	
tca aat gac atg atg ggc tca tat gct gaa atg aaa ttt gac cac			5337

Ser	Asn	Asp	Met	Met	Gly	Ser	Tyr	Ala	Glu	Met	Lys	Phe	Asp	His	
1740						1745					1750				
aca	aac	agt	ctg	aac	att	gca	ggc	tta	tca	ctg	gac	ttc	tct	tca	5382
Thr	Asn	Ser	Leu	Asn	Ile	Ala	Gly	Leu	Ser	Leu	Asp	Phe	Ser	Ser	
1755						1760					1765				
aaa	ctt	gac	aac	att	tac	agc	tct	gac	aag	ttt	tat	aag	caa	act	5427
Lys	Leu	Asp	Asn	Ile	Tyr	Ser	Ser	Asp	Lys	Phe	Tyr	Lys	Gln	Thr	
1770						1775					1780				
gtt	aat	tta	cag	cta	cag	ccc	tat	tct	ctg	gta	act	act	tta	aac	5472
Val	Asn	Leu	Gln	Leu	Gln	Pro	Tyr	Ser	Leu	Val	Thr	Thr	Leu	Asn	
1785						1790					1795				
agt	gac	ctg	aaa	tac	aat	gct	ctg	gat	ctc	acc	aac	aat	ggg	aaa	5517
Ser	Asp	Leu	Lys	Tyr	Asn	Ala	Leu	Asp	Leu	Thr	Asn	Asn	Gly	Lys	
1800						1805					1810				
cta	cgg	cta	gaa	ccc	ctg	aag	ctg	cat	gtg	gct	ggt	aac	cta	aaa	5562
Leu	Arg	Leu	Glu	Pro	Leu	Lys	Leu	His	Val	Ala	Gly	Asn	Leu	Lys	
1815						1820					1825				
gga	gcc	tac	caa	aat	aat	gaa	ata	aaa	cac	atc	tat	gcc	atc	tct	5607
Gly	Ala	Tyr	Gln	Asn	Asn	Glu	Ile	Lys	His	Ile	Tyr	Ala	Ile	Ser	
1830						1835					1840				
tct	gct	gcc	tta	tca	gca	agc	tat	aaa	gca	gac	act	gtt	gct	aag	5652
Ser	Ala	Ala	Leu	Ser	Ala	Ser	Tyr	Lys	Ala	Asp	Thr	Val	Ala	Lys	
1845						1850					1855				
gtt	cag	ggt	gtg	gag	ttt	agc	cat	cgg	ctc	aac	aca	gac	atc	gtc	5697
Val	Gln	Gly	Val	Glu	Phe	Ser	His	Arg	Leu	Asn	Thr	Asp	Ile	Ala	
1860						1865					1870				
ggg	ctg	gct	tca	gcc	att	gac	atg	agc	aca	aac	tat	aat	tca	gac	5742
Gly	Leu	Ala	Ser	Ala	Ile	Asp	Met	Ser	Thr	Asn	Tyr	Asn	Ser	Asp	
1875						1880					1885				
tca	ctg	cat	ttc	agc	aat	gtc	ttc	cgt	tct	gta	atg	gcc	ccg	ttt	5787
Ser	Leu	His	Phe	Ser	Asn	Val	Phe	Arg	Ser	Val	Met	Ala	Pro	Phe	
1890						1895					1900				
acc	atg	acc	atc	gat	gca	cat	aca	aat	ggc	aat	ggg	aaa	ctc	gct	5832
Thr	Met	Thr	Ile	Asp	Ala	His	Thr	Asn	Gly	Asn	Gly	Lys	Leu	Ala	
1905						1910					1915				
ctc	tgg	gga	gaa	cat	act	ggg	cag	ctg	tat	agc	aaa	ttc	ctg	ttg	5877
Leu	Trp	Gly	Glu	His	Thr	Gly	Gln	Leu	Tyr	Ser	Lys	Phe	Leu	Leu	
1920						1925					1930				
aaa	gca	gaa	cct	ctg	gca	ttt	act	ttc	tct	cat	gat	tac	aaa	ggc	5922
Lys	Ala	Glu	Pro	Leu	Ala	Phe	Thr	Phe	Ser	His	Asp	Tyr	Lys	Gly	
1935						1940					1945				
tcc	aca	agt	cat	cat	ctc	gtg	tct	agg	aaa	agc	atc	agt	gca	gct	5967
Ser	Thr	Ser	His	His	Leu	Val	Ser	Arg	Lys	Ser	Ile	Ser	Ala	Ala	
1950						1955					1960				
ctt	gaa	cac	aaa	gtc	agt	gcc	ctg	ctt	act	cca	gct	gag	cag	aca	6012



Tyr	Asp	Leu	His	Asp	Leu	Lys	Ile	Ala	Ile	Ala	Asn	Ile	Ile	Asp		
2190						2195						2200				
gaa	atc	att	gaa	aaa	tta	aaa	agt	ctt	gat	gag	cac	tat	cat	atc	6732	
Glu	Ile	Ile	Glu	Lys	Leu	Lys	Ser	Leu	Asp	Glu	His	Tyr	His	Ile		
2205						2210						2215				
cgt	gta	aat	tta	gta	aaa	aca	atc	cat	gat	cta	cat	ttg	ttt	att	6777	
Arg	Val	Asn	Leu	Val	Lys	Thr	Ile	His	Asp	Leu	His	Leu	Phe	Ile		
2220						2225						2230				
gaa	aat	att	gat	ttt	aac	aaa	agt	gga	agt	agt	act	gca	tcc	tgg	6822	
Glu	Asn	Ile	Asp	Phe	Asn	Lys	Ser	Gly	Ser	Ser	Thr	Ala	Ser	Trp		
2235						2240						2245				
att	caa	aat	gtg	gat	act	aag	tac	caa	atc	aga	atc	cag	ata	caa	6867	
Ile	Gln	Asn	Val	Asp	Thr	Lys	Tyr	Gln	Ile	Arg	Ile	Gln	Ile	Gln		
2250						2255						2260				
gaa	aaa	ctg	cag	cag	ctt	aag	aga	cac	ata	cag	aat	ata	gac	atc	6912	
Glu	Lys	Leu	Gln	Gln	Leu	Lys	Arg	His	Ile	Gln	Asn	Ile	Asp	Ile		
2265						2270						2275				
cag	cac	cta	gct	gga	aag	tta	aaa	caa	cac	att	gag	gct	att	gat	6957	
Gln	His	Leu	Ala	Gly	Lys	Leu	Lys	Gln	His	Ile	Glu	Ala	Ile	Asp		
2280						2285						2290				
gtt	aga	gtg	ctt	tta	gat	caa	ttg	gga	act	aca	att	tca	ttt	gaa	7002	
Val	Arg	Val	Leu	Leu	Asp	Gln	Leu	Gly	Thr	Thr	Ile	Ser	Phe	Glu		
2295						2300						2305				
aga	ata	aat	gat	gtt	ctt	gag	cac	gtc	aaa	cac	ttt	gtt	ata	aat	7047	
Arg	Ile	Asn	Asp	Val	Leu	Glu	His	Val	Lys	His	Phe	Val	Ile	Asn		
2310						2315						2320				
ctt	att	ggg	gat	ttt	gaa	gta	gct	gag	aaa	atc	aat	gcc	ttc	aga	7092	
Leu	Ile	Gly	Asp	Phe	Glu	Val	Ala	Glu	Lys	Ile	Asn	Ala	Phe	Arg		
2325						2330						2335				
gcc	aaa	gtc	cat	gag	tta	atc	gag	agg	tat	gaa	gta	gac	caa	caa	7137	
Ala	Lys	Val	His	Glu	Leu	Ile	Glu	Arg	Tyr	Glu	Val	Asp	Gln	Gln		
2340						2345						2350				
atc	cag	gtt	tta	atg	gat	aaa	tta	gta	gag	ttg	gcc	cac	caa	tac	7182	
Ile	Gln	Val	Leu	Met	Asp	Lys	Leu	Val	Glu	Leu	Ala	His	Gln	Tyr		
2355						2360						2365				
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Lys	Leu	Lys	Glu	Thr	Ile	Gln	Lys	Leu	Ser	Asn	Val	Leu	Gln	Gln		
2370						2375						2380				
gtt	aag	ata	aaa	gat	tac	ttt	gag	aaa	ttg	gtt	gga	ttt	att	gat	7272	
Val	Lys	Ile	Lys	Asp	Tyr	Phe	Glu	Lys	Leu	Val	Gly	Phe	Ile	Asp		
2385						2390						2395				
gat	gct	gtc	aag	aag	ctt	aat	gaa	tta	tct	ttt	aaa	aca	ttc	att	7317	
Asp	Ala	Val	Lys	Lys	Leu	Asn	Glu	Leu	Ser	Phe	Lys	Thr	Phe	Ile		
2400						2405						2410				
gaa	gat	gtt	aac	aaa	ttc	ctt	gac	atg	ttg	ata	aag	aaa	tta	aag	7362	

Glu	Asp	Val	Asn	Lys	Phe	Leu	Asp	Met	Leu	Ile	Lys	Lys	Leu	Lys	
2415					2420				2425						
tca	ttt	gat	tac	cac	cag	ttt	gta	gat	gaa	acc	aat	gac	aaa	atc	7407
Ser	Phe	Asp	Tyr	His	Gln	Phe	Val	Asp	Glu	Thr	Asn	Asp	Lys	Ile	
2430					2435				2440						
cgt	gag	gtg	act	cag	aga	ctc	aat	ggt	gaa	att	cag	gct	ctg	gaa	7452
Arg	Glu	Val	Thr	Gln	Arg	Leu	Asn	Gly	Glu	Ile	Gln	Ala	Leu	Glu	
2445					2450				2455						
cta	cca	caa	aaa	gct	gaa	gca	tta	aaa	ctg	ttt	tta	gag	gaa	acc	7497
Leu	Pro	Gln	Lys	Ala	Glu	Ala	Leu	Lys	Leu	Phe	Leu	Glu	Glu	Thr	
2460					2465				2470						
aag	gcc	aca	gtt	gca	gtg	tat	ctg	gaa	agc	cta	cag	gac	acc	aaa	7542
Lys	Ala	Thr	Val	Ala	Val	Tyr	Leu	Glu	Ser	Leu	Gln	Asp	Thr	Lys	
2475					2480				2485						
ata	acc	tta	atc	atc	aat	tgg	tta	cag	gag	gct	tta	agt	tca	gca	7587
Ile	Thr	Leu	Ile	Ile	Asn	Trp	Leu	Gln	Glu	Ala	Leu	Ser	Ser	Ala	
2490					2495				2500						
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Ser	Leu	Ala	His	Met	Lys	Ala	Lys	Phe	Arg	Glu	Thr	Leu	Glu	Asp	
2505					2510				2515						
aca	cga	gac	cga	atg	tat	caa	atg	gac	att	cag	cag	gaa	ctt	caa	7677
Thr	Arg	Asp	Arg	Met	Tyr	Gln	Met	Asp	Ile	Gln	Gln	Glu	Leu	Gln	
2520					2525				2530						
cga	tac	ctg	tct	ctg	gta	ggc	cag	gtt	tat	agc	aca	ctt	gtc	acc	7722
Arg	Tyr	Leu	Ser	Leu	Val	Gly	Gln	Val	Tyr	Ser	Thr	Leu	Val	Thr	
2535					2540				2545						
tac	att	tct	gat	tgg	tgg	act	ctt	gct	gct	aag	aac	ctt	act	gac	7767
Tyr	Ile	Ser	Asp	Trp	Trp	Thr	Leu	Ala	Ala	Lys	Asn	Leu	Thr	Asp	
2550					2555				2560						
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Phe	Ala	Glu	Gln	Tyr	Ser	Ile	Gln	Asp	Trp	Ala	Lys	Arg	Met	Lys	
2565					2570				2575						
gca	ttg	gta	gag	caa	ggg	ttc	act	gtt	cct	gaa	atc	aag	acc	atc	7857
Ala	Leu	Val	Glu	Gln	Gly	Phe	Thr	Val	Pro	Glu	Ile	Lys	Thr	Ile	
2580					2585				2590						
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Leu	Gly	Thr	Met	Pro	Ala	Phe	Glu	Val	Ser	Leu	Gln	Ala	Leu	Gln	
2595					2600				2605						
aaa	gct	acc	ttc	cag	aca	cct	gat	ttt	ata	gtc	ccc	cta	aca	gat	7947
Lys	Ala	Thr	Phe	Gln	Thr	Pro	Asp	Phe	Ile	Val	Pro	Leu	Thr	Asp	
2610					2615				2620						
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Leu	Arg	Ile	Pro	Ser	Val	Gln	Ile	Asn	Phe	Lys	Asp	Leu	Lys	Asn	
2625					2630				2635						
ata	aaa	atc	cca	tcc	agg	ttt	tcc	aca	cca	gaa	ttt	acc	atc	ttt	8037

Ile	Lys	Ile	Pro	Ser	Arg	Phe	Ser	Thr	Pro	Glu	Phe	Thr	Ile	Leu	
2640						2645					2650				
aac	acc	ttc	cac	att	cct	tcc	ttt	aca	att	gac	ttt	gta	gaa	atg	8082
Asn	Thr	Phe	His	Ile	Pro	Ser	Phe	Thr	Ile	Asp	Phe	Val	Glu	Met	
2655						2660					2665				
aaa	gta	aag	atc	atc	aga	acc	att	gac	cag	atg	ctg	aac	agt	gag	8127
Lys	Val	Lys	Ile	Ile	Arg	Thr	Ile	Asp	Gln	Met	Leu	Asn	Ser	Glu	
2670						2675					2680				
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Leu	Gln	Trp	Pro	Val	Pro	Asp	Ile	Tyr	Leu	Arg	Asp	Leu	Lys	Val	
2685						2690					2695				
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Glu	Asp	Ile	Pro	Leu	Ala	Arg	Ile	Thr	Leu	Pro	Asp	Phe	Arg	Leu	
2700						2705					2710				
cca	gaa	atc	gca	att	cca	gaa	ttc	ata	atc	cca	act	ctc	aac	ctt	8262
Pro	Glu	Ile	Ala	Ile	Pro	Glu	Phe	Ile	Ile	Pro	Thr	Leu	Asn	Leu	
2715						2720					2725				
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Asn	Asp	Phe	Gln	Val	Pro	Asp	Leu	His	Ile	Pro	Glu	Phe	Gln	Leu	
2730						2735					2740				
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Pro	His	Ile	Ser	His	Thr	Ile	Glu	Val	Pro	Thr	Phe	Gly	Lys	Leu	
2745						2750					2755				
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Tyr	Ser	Ile	Leu	Lys	Ile	Gln	Ser	Pro	Leu	Phe	Thr	Leu	Asp	Ala	
2760						2765					2770				
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Asn	Ala	Asp	Ile	Gly	Asn	Gly	Thr	Thr	Ser	Ala	Asn	Glu	Ala	Gly	
2775						2780					2785				
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Ile	Ala	Ala	Ser	Ile	Thr	Ala	Lys	Gly	Gl	Ser	Lys	Leu	Glu	Val	
2790						2795					2800				
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Leu	Asn	Phe	Asp	Phe	Gln	Ala	Asn	Ala	Gln	Leu	Ser	Asn	Pro	Lys	
2805						2810					2815				
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Ile	Asn	Pro	Leu	Ala	Leu	Lys	Glu	Ser	Val	Lys	Phe	Ser	Ser	Lys	
2820						2825					2830				
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Tyr	Leu	Arg	Thr	Glu	His	Gly	Ser	Glu	Met	Leu	Phe	Phe	Gly	Asn	
2835						2840					2845				
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Ala	Ile	Glu	Gly	Lys	Ser	Asn	Thr	Val	Ala	Ser	Leu	His	Thr	Glu	
2850						2855					2860				
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Lys	Asn	Thr	Leu	Glu	Leu	Ser	Asn	Gly	Val	Ile	Val	Lys	Ile	Asn	
2865						2870					2875				
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Asn	Gln	Leu	Thr	Leu	Asp	Ser	Asn	Thr	Lys	Tyr	Phe	His	Lys	Leu	
2880						2885					2890				
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Asn	Ile	Pro	Lys	Leu	Asp	Phe	Ser	Ser	Gln	Ala	Asp	Leu	Arg	Asn	
2895						2900					2905				
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Glu	Ile	Lys	Thr	Leu	Leu	Lys	Ala	Gly	His	Ile	Ala	Trp	Thr	Ser	
2910						2915					2920				
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Ser	Gly	Lys	Gly	Ser	Trp	Lys	Trp	Ala	Cys	Pro	Arg	Phe	Ser	Asp	
2925						2930					2935				
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Glu	Gly	Thr	His	Glu	Ser	Gln	Ile	Ser	Phe	Thr	Ile	Glu	Gly	Pro	
2940						2945					2950				
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Leu	Thr	Ser	Phe	Gly	Leu	Ser	Asn	Lys	Ile	Asn	Ser	Lys	His	Leu	
2955						2960					2965				
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Arg	Val	Asn	Gln	Asn	Leu	Val	Tyr	Glu	Ser	Gly	Ser	Leu	Asn	Phe	
2970						2975					2980				
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Ser	Lys	Leu	Glu	Ile	Gln	Ser	Gln	Val	Asp	Ser	Gln	His	Val	Gly	
2985						2990					2995				
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His	Ser	Val	Leu	Thr	Ala	Lys	Gly	Met	Ala	Leu	Phe	Gly	Glu	Gly	
3000						3005					3010				
aag	gca	gag	ttt	act	ggg	agg	cat	gat	gct	cat	tta	aat	gga	aag	9162
Lys	Ala	Glu	Phe	Thr	Gly	Arg	His	Asp	Ala	His	Leu	Asn	Gly	Lys	
3015						3020					3025				
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Val	Ile	Gly	Thr	Leu	Lys	Asn	Ser	Leu	Phe	Phe	Ser	Ala	Gln	Pro	
3030						3035					3040				
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Phe	Glu	Ile	Thr	Ala	Ser	Thr	Asn	Asn	Glu	Gly	Asn	Leu	Lys	Val	
3045						3050					3055				
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Arg	Phe	Pro	Leu	Arg	Leu	Thr	Gly	Lys	Ile	Asp	Phe	Leu	Asn	Asn	
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Tyr	Ala	Leu	Phe	Leu	Ser	Pro	Ser	Ala	Gln	Gln	Ala	Ser	Trp	Gln	
3075						3080					3085				
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Val	Ser	Ala	Arg	Phe	Asn	Gln	Tyr	Lys	Tyr	Asn	Gln	Asn	Phe	Ser	
3090						3095					3100				
gct	gga	aac	aac	gag	aac	att	atg	gag	gcc	cat	gta	gga	ata	aat	9432
Ala	Gly	Asn	Asn	Glu	Asn	Ile	Met	Glu	Ala	His	Val	Gly	Ile	Asn	
3105						3110					3115				
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Gly	Glu	Ala	Asn	Leu	Asp	Phe	Leu	Asn	Ile	Pro	Leu	Thr	Ile	Pro	
3120						3125					3130				
gaa	atg	cgt	cta	cct	tac	aca	ata	atc	aca	act	cct	cca	ctg	aaa	9522
Glu	Met	Arg	Leu	Pro	Tyr	Thr	Ile	Ile	Thr	Thr	Pro	Pro	Leu	Lys	
3135						3140					3145				
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Asp	Phe	Ser	Leu	Trp	Glu	Lys	Thr	Gly	Leu	Lys	Glu	Phe	Leu	Lys	
3150						3155					3160				
acg	aca	aag	caa	tca	ttt	gat	tta	agt	gta	aaa	gct	cag	tat	aag	9612
Thr	Thr	Lys	Gln	Ser	Phe	Asp	Leu	Ser	Val	Lys	Ala	Gln	Tyr	Lys	
3165						3170					3175				
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Lys	Asn	Lys	His	Arg	His	Ser	Ile	Thr	Asn	Pro	Leu	Ala	Val	Leu	
3180						3185					3190				
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Cys	Glu	Phe	Ile	Ser	Gln	Ser	Ile	Lys	Ser	Phe	Asp	Arg	His	Phe	
3195						3200					3205				
gaa	aaa	aac	aga	aac	aat	gca	tta	gat	ttt	gtc	acc	aaa	tcc	tat	9747
Glu	Lys	Asn	Arg	Asn	Asn	Ala	Leu	Asp	Phe	Val	Thr	Lys	Ser	Tyr	
3210						3215					3220				
aat	gaa	aca	aaa	att	aag	ttt	gat	aag	tac	aaa	gct	gaa	aaa	tct	9792
Asn	Glu	Thr	Lys	Ile	Lys	Phe	Asp	Lys	Tyr	Lys	Ala	Glu	Lys	Ser	
3225						3230					3235				
cac	gac	gag	ctc	ccc	agg	acc	ttt	caa	att	cct	gga	tac	act	gtt	9837
His	Asp	Glu	Leu	Pro	Arg	Thr	Phe	Gln	Ile	Pro	Gly	Tyr	Thr	Val	
3240						3245					3250				
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Pro	Val	Val	Asn	Val	Glu	Val	Ser	Pro	Phe	Thr	Ile	Glu	Met	Ser	
3255						3260					3265				
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Ala	Phe	Gly	Tyr	Val	Phe	Pro	Lys	Ala	Val	Ser	Met	Pro	Ser	Phe	
3270						3275					3280				
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Ser	Ile	Leu	Gly	Ser	Asp	Val	Arg	Val	Pro	Ser	Tyr	Thr	Leu	Ile	
3285						3290					3295				
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Leu	Pro	Ser	Leu	Glu	Leu	Pro	Val	Leu	His	Val	Pro	Arg	Asn	Leu	
3300						3305					3310				
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Lys	Leu	Ser	Leu	Pro	Asp	Phe	Lys	Glu	Leu	Cys	Thr	Ile	Ser	His	
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Ile	Phe	Ile	Pro	Ala	Met	Gly	Asn	Ile	Thr	Tyr	Asp	Phe	Ser	Phe	
3330						3335				3340					
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3345						3350				3355					
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Gln	Ser	Asp	Ile	Val	Ala	His	Leu	Leu	Ser	Ser	Ser	Ser	Ser	Val	
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Ile	Asp	Ala	Leu	Gln	Tyr	Lys	Leu	Glu	Gly	Thr	Thr	Arg	Leu	Thr	
3375						3380				3385					
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Arg	Lys	Arg	Gly	Leu	Lys	Leu	Ala	Thr	Ala	Leu	Ser	Leu	Ser	Asn	
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Lys	Phe	Val	Glu	Gly	Ser	His	Asn	Ser	Thr	Val	Ser	Leu	Thr	Thr	
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Lys	Asn	Met	Glu	Val	Ser	Val	Ala	Thr	Thr	Thr	Lys	Ala	Gln	Ile	
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Pro	Ile	Leu	Arg	Met	Asn	Phe	Lys	Gln	Glu	Leu	Asn	Gly	Asn	Thr	
3435						3440				3445					
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Lys	Ser	Lys	Pro	Thr	Val	Ser	Ser	Ser	Met	Glu	Phe	Lys	Tyr	Asp	
3450						3455				3460					
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Phe	Asn	Ser	Ser	Met	Leu	Tyr	Ser	Thr	Ala	Lys	Gly	Ala	Val	Asp	
3465						3470				3475					
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His	Lys	Leu	Ser	Leu	Glu	Ser	Leu	Thr	Ser	Tyr	Phe	Ser	Ile	Glu	
3480						3485				3490					
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Ser	Ser	Thr	Lys	Gly	Asp	Val	Lys	Gly	Ser	Val	Leu	Ser	Arg	Glu	
3495						3500				3505					
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Tyr	Ser	Gly	Thr	Ile	Ala	Ser	Glu	Ala	Asn	Thr	Tyr	Leu	Asn	Ser	
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Lys	Ser	Thr	Arg	Ser	Ser	Val	Lys	Leu	Gln	Gly	Thr	Ser	Lys	Ile	
3525						3530				3535					
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Asp Asp Ile Trp Asn Leu Glu	Val Lys Glu Asn Phe	Ala Gly Glu	
3540	3545	3550	
gcc aca ctc caa cgc ata tat	tcc ctc tgg gag cac	agt acg aaa	10782
Ala Thr Leu Gln Arg Ile Tyr	Ser Leu Trp Glu His	Ser Thr Lys	
3555	3560	3565	
aac cac tta cag cta gag ggc	ctc ttt ttc acc aac	gga gaa cat	10827
Asn His Leu Gln Leu Glu Gly	Leu Phe Phe Thr Asn	Gly Glu His	
3570	3575	3580	
aca agc aaa gcc acc ctg gaa	ctc tct cca tgg caa	atg tca gct	10872
Thr Ser Lys Ala Thr Leu Glu	Leu Ser Pro Trp Gln	Met Ser Ala	
3585	3590	3595	
ctt gtt cag gtc cat gca agt	cag ccc agt tcc ttc	cat gat ttc	10917
Leu Val Gln Val His Ala Ser	Gln Pro Ser Ser Phe	His Asp Phe	
3600	3605	3610	
cct gac ctt ggc cag gaa gtg	gcc ctg aat gct aac	act aag aac	10962
Pro Asp Leu Gly Gln Glu Val	Ala Leu Asn Ala Asn	Thr Lys Asn	
3615	3620	3625	
cag aag atc aga tgg aaa aat	gaa gtc cgg att cat	tct ggg tct	11007
Gln Lys Ile Arg Trp Lys Asn	Glu Val Arg Ile His	Ser Gly Ser	
3630	3635	3640	
ttc cag agc cag gtc gag ctt	tcc aat gac caa gaa	aag gca cac	11052
Phe Gln Ser Gln Val Glu Leu	Ser Asn Asp Gln Glu	Lys Ala His	
3645	3650	3655	
ctt gac att gca gga tcc tta	gaa gga cac cta agg	ttc ctc aaa	11097
Leu Asp Ile Ala Gly Ser Leu	Glu Gly His Leu Arg	Phe Leu Lys	
3660	3665	3670	
aat atc atc cta cca gtc tat	gac aag agc tta tgg	gat ttc cta	11142
Asn Ile Ile Leu Pro Val Tyr	Asp Lys Ser Leu Trp	Asp Phe Leu	
3675	3680	3685	
aag ctg gat gta acc acc agc	att ggt agg aga cag	cat ctt cgt	11187
Lys Leu Asp Val Thr Thr Ser	Ile Gly Arg Arg Gln	His Leu Arg	
3690	3695	3700	
gtt tca act gcc ttt gtg tac	acc aaa aac ccc aat	ggc tat tca	11232
Val Ser Thr Ala Phe Val Tyr	Thr Lys Asn Pro Asn	Gly Tyr Ser	
3705	3710	3715	
ttc tcc atc cct gta aaa gtt	ttg gct gat aaa ttc	att att cct	11277
Phe Ser Ile Pro Val Lys Val	Leu Ala Asp Lys Phe	Ile Ile Pro	
3720	3725	3730	
ggg ctg aaa cta aat gat cta	aat tca gtt ctt gtc	atg cct acg	11322
Gly Leu Lys Leu Asn Asp Leu	Asn Ser Val Leu Val	Met Pro Thr	
3735	3740	3745	
ttc cat gtc cca ttt aca gat	ctt cag gtt cca tcg	tgc aaa ctt	11367
Phe His Val Pro Phe Thr Asp	Leu Gln Val Pro Ser	Cys Lys Leu	
3750	3755	3760	
gac ttc aga gaa ata caa atc	tat aag aag ctg aga	act tca tca	11412

Asp	Phe	Arg	Glu	Ile	Gln	Ile	Tyr	Lys	Lys	Leu	Arg	Thr	Ser	Ser	
3765						3770					3775				
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Phe	Ala	Leu	Asn	Leu	Pro	Thr	Leu	Pro	Glu	Val	Lys	Phe	Pro	Glu	
3780						3785					3790				
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Val	Asp	Val	Leu	Thr	Lys	Tyr	Ser	Gln	Pro	Glu	Asp	Ser	Leu	Ile	
3795						3800					3805				
ccc	ttt	ttt	gag	ata	acc	gtg	cct	gaa	tct	cag	tta	act	gtg	tcc	11547
Pro	Phe	Phe	Glu	Ile	Thr	Val	Pro	Glu	Ser	Gln	Leu	Thr	Val	Ser	
3810						3815					3820				
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Gln	Phe	Thr	Leu	Pro	Lys	Ser	Val	Ser	Asp	Gly	Ile	Ala	Ala	Leu	
3825						3830					3835				
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Asp	Leu	Asn	Ala	Val	Ala	Asn	Lys	Ile	Ala	Asp	Phe	Glu	Leu	Pro	
3840						3845					3850				
acc	atc	atc	gtg	cct	gag	cag	acc	att	gag	att	ccc	tcc	att	aag	11682
Thr	Ile	Ile	Val	Pro	Glu	Gln	Thr	Ile	Glu	Ile	Pro	Ser	Ile	Lys	
3855						3860					3865				
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Phe	Ser	Val	Pro	Ala	Gly	Ile	Ala	Ile	Pro	Ser	Phe	Gln	Ala	Leu	
3870						3875					3880				
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Thr	Ala	Arg	Phe	Glu	Val	Asp	Ser	Pro	Val	Tyr	Asn	Ala	Thr	Trp	
3885						3890					3895				
agt	gcc	agt	ttg	aaa	aac	aaa	gca	gat	tat	gtt	gaa	aca	gtc	ctg	11817
Ser	Ala	Ser	Leu	Lys	Asn	Lys	Ala	Asp	Tyr	Val	Glu	Thr	Val	Leu	
3900						3905					3910				
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3915						3920					3925				
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Lys	Thr	Lys	Gly	Thr	Phe	Ala	His	Arg	Asp	Phe	Ser	Ala	Glu	Tyr	
3945						3950					3955				
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3960						3965					3970				
gcg	cac	ctc	aat	atc	aaa	agc	cca	gcg	ttc	acc	gat	ctc	cat	ctg	12042
Ala	His	Leu	Asn	Ile	Lys	Ser	Pro	Ala	Phe	Thr	Asp	Leu	His	Leu	
3975						3980					3985				
cgc	tac	cag	aaa	gac	aag	aaa	ggc	atc	tcc	acc	tca	gca	gcc	tcc	12087

Arg	Tyr	Gln	Lys	Asp	Lys	Lys	Gly	Ile	Ser	Thr	Ser	Ala	Ala	Ser	
3990					3995						4000				
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Pro	Ala	Val	Gly	Thr	Val	Gly	Met	Asp	Met	Asp	Glu	Asp	Asp	Asp	
4005					4010						4015				
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Phe	Ser	Lys	Trp	Asn	Phe	Tyr	Tyr	Ser	Pro	Gln	Ser	Ser	Pro	Asp	
4020					4025						4030				
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Lys	Lys	Leu	Thr	Ile	Phe	Lys	Thr	Glu	Leu	Arg	Val	Arg	Glu	Ser	
4035					4040						4045				
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Asp	Glu	Glu	Thr	Gln	Ile	Lys	Val	Asn	Trp	Glu	Glu	Glu	Ala	Ala	
4050					4055						4060				
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Ser	Gly	Leu	Leu	Thr	Ser	Leu	Lys	Asp	Asn	Val	Pro	Lys	Ala	Thr	
4065					4070						4075				
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Gly	Val	Leu	Tyr	Asp	Tyr	Val	Asn	Lys	Tyr	His	Trp	Glu	His	Thr	
4080					4085						4090				
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4095					4100						4105				
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Gln	Asp	His	Ala	Glu	Trp	Val	Tyr	Gln	Gly	Ala	Ile	Arg	Glu	Ile	
4110					4115						4120				
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Asp	Asp	Ile	Asp	Glu	Arg	Phe	Gln	Lys	Gly	Ala	Ser	Gly	Thr	Thr	
4125					4130						4135				
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4140					4145						4150				
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4155					4160						4165				
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4170					4175						4180				
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4185					4190						4195				
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Phe	Pro	Arg	Phe	Gln	Phe	Pro	Gly	Lys	Pro	Gly	Ile	Tyr	Thr	Arg	
4200					4205						4210				
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4215						4220						4225				
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4230						4235						4240				
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4245						4250						4255				
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4260						4265						4270				
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Lys	Asp	Leu	Ser	Lys	Glu	Ala	Gln	Glu	Val	Phe	Lys	Ala	Ile	Gln		
4275						4280						4285				
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4290						4295						4300				
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Gln	Phe	Ile	Phe	Gln	Leu	Ile	Glu	Asp	Asn	Ile	Lys	Gln	Leu	Lys		
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4320						4325						4330				
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4335						4340						4345				
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Lys	Glu	Asn	Leu	Cys	Leu	Asn	Leu	His	Lys	Phe	Asn	Glu	Phe	Ile		
4350						4355						4360				
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Gln	Asn	Glu	Leu	Gln	Glu	Ala	Ser	Gln	Glu	Leu	Gln	Gln	Ile	His		
4365						4370						4375				
caa	tac	att	atg	gcc	ctt	cgt	gaa	gaa	tat	ttt	gat	cca	agt	ata	13257	
Gln	Tyr	Ile	Met	Ala	Leu	Arg	Glu	Glu	Tyr	Phe	Asp	Pro	Ser	Ile		
4380						4385						4390				
gtt	ggc	tgg	aca	gtg	aaa	tat	tat	gaa	ctt	gaa	gaa	aag	ata	gtc	13302	
Val	Gly	Trp	Thr	Val	Lys	Tyr	Tyr	Glu	Leu	Glu	Glu	Lys	Ile	Val		
4395						4400						4405				
agt	ctg	atc	aag	aac	ctg	tta	gtt	gct	ctt	aag	gac	ttc	cat	tct	13347	
Ser	Leu	Ile	Lys	Asn	Leu	Leu	Val	Ala	Leu	Lys	Asp	Phe	His	Ser		
4410						4415						4420				
gaa	tat	att	gtc	agt	gcc	tct	aac	ttt	act	tcc	caa	ctc	tca	agt	13392	
Glu	Tyr	Ile	Val	Ser	Ala	Ser	Asn	Phe	Thr	Ser	Gln	Leu	Ser	Ser		
4425						4430						4435				
caa	gtt	gag	caa	ttt	ctg	cac	aga	aat	att	cag	gaa	tat	ctt	agc	13437	



Leu Arg Lys Tyr Thr Tyr Asn Tyr Glu Ala Glu Ser Ser Ser Gly Val  
 50 55 60

Pro Gly Thr Ala Asp Ser Arg Ser Ala Thr Arg Ile Asn Cys Lys Val  
 65 70 75 80

Glu Leu Glu Val Pro Gln Leu Cys Ser Phe Ile Leu Lys Thr Ser Gln  
 85 90 95

Cys Ile Leu Lys Glu Val Tyr Gly Phe Asn Pro Glu Gly Lys Ala Leu  
 100 105 110

Leu Lys Lys Thr Lys Asn Ser Glu Glu Phe Ala Ala Ala Met Ser Arg  
 115 120 125

Tyr Glu Leu Lys Leu Ala Ile Pro Glu Gly Lys Gln Val Phe Leu Tyr  
 130 135 140

Pro Glu Lys Asp Glu Pro Thr Tyr Ile Leu Asn Ile Lys Arg Gly Ile  
 145 150 155 160

Ile Ser Ala Leu Leu Val Pro Pro Glu Thr Glu Glu Ala Lys Gln Val  
 165 170 175

Leu Phe Leu Asp Thr Val Tyr Gly Asn Cys Ser Thr His Phe Thr Val  
 180 185 190

Lys Thr Arg Lys Gly Asn Val Ala Thr Glu Ile Ser Thr Glu Arg Asp  
 195 200 205

Leu Gly Gln Cys Asp Arg Phe Lys Pro Ile Arg Thr Gly Ile Ser Pro  
 210 215 220

Leu Ala Leu Ile Lys Gly Met Thr Arg Pro Leu Ser Thr Leu Ile Ser  
 225 230 235 240

Ser Ser Gln Ser Cys Gln Tyr Thr Leu Asp Ala Lys Arg Lys His Val  
 245 250 255

Ala Glu Ala Ile Cys Lys Glu Gln His Leu Phe Leu Pro Phe Ser Tyr  
 260 265 270

Lys Asn Lys Tyr Gly Met Val Ala Gln Val Thr Gln Thr Leu Lys Leu  
 275 280 285

Glu Asp Thr Pro Lys Ile Asn Ser Arg Phe Phe Gly Glu Gly Thr Lys  
 290 295 300

Lys Met Gly Leu Ala Phe Glu Ser Thr Lys Ser Thr Ser Pro Pro Lys  
 305 310 315 320

Gln Ala Glu Ala Val Leu Lys Thr Val Gln Glu Leu Lys Lys Leu Thr  
 325 330 335

Ile Ser Glu Gln Asn Ile Gln Arg Ala Asn Leu Phe Asn Lys Leu Val  
 340 345 350

Thr Glu Leu Arg Gly Leu Ser Asp Glu Ala Val Thr Ser Leu Leu Pro  
 355 360 365

Gln Leu Ile Glu Val Ser Ser Pro Ile Thr Leu Gln Ala Leu Val Gln  
 370 375 380

Cys Gly Gln Pro Gln Cys Ser Thr His Ile Leu Gln Trp Leu Lys Arg  
 385 390 395 400

Val His Ala Asn Pro Leu Leu Ile Asp Val Val Thr Tyr Leu Val Ala  
 405 410 415

Leu Ile Pro Glu Pro Ser Ala Gln Gln Leu Arg Glu Ile Phe Asn Met  
 420 425 430

Ala Arg Asp Gln Arg Ser Arg Ala Thr Leu Tyr Ala Leu Ser His Ala  
 435 440 445

Val Asn Asn Tyr His Lys Thr Asn Pro Thr Gly Thr Gln Glu Leu Leu  
 450 455 460

Asp Ile Ala Asn Tyr Leu Met Glu Gln Ile Gln Asp Asp Cys Thr Gly  
 465 470 475 480

Asp Glu Asp Tyr Thr Tyr Leu Ile Leu Arg Val Ile Gly Asn Met Gly  
 485 490 495

Gln Thr Met Glu Gln Leu Thr Pro Glu Leu Lys Ser Ser Ile Leu Lys  
 500 505 510

Cys Val Gln Ser Thr Lys Pro Ser Leu Met Ile Gln Lys Ala Ala Ile  
 515 520 525

Gln Ala Leu Arg Lys Met Glu Pro Lys Asp Lys Asp Gln Glu Val Leu  
530 535 540

Leu Gln Thr Phe Leu Asp Asp Ala Ser Pro Gly Asp Lys Arg Leu Ala  
545 550 555 560

Ala Tyr Leu Met Leu Met Arg Ser Pro Ser Gln Ala Asp Ile Asn Lys  
565 570 575

Ile Val Gln Ile Leu Pro Trp Glu Gln Asn Glu Gln Val Lys Asn Phe  
580 585 590

Val Ala Ser His Ile Ala Asn Ile Leu Asn Ser Glu Glu Leu Asp Ile  
595 600 605

Gln Asp Leu Lys Lys Leu Val Lys Glu Val Leu Lys Glu Ser Gln Leu  
610 615 620

Pro Thr Val Met Asp Phe Arg Lys Phe Ser Arg Asn Tyr Gln Leu Tyr  
625 630 635 640

Lys Ser Val Ser Ile Pro Ser Leu Asp Pro Ala Ser Ala Lys Ile Glu  
645 650 655

Gly Asn Leu Ile Phe Asp Pro Asn Asn Tyr Leu Pro Lys Glu Ser Met  
660 665 670

Leu Lys Thr Thr Leu Thr Ala Phe Gly Phe Ala Ser Ala Asp Leu Ile  
675 680 685

Glu Ile Gly Leu Glu Gly Lys Gly Phe Glu Pro Thr Leu Glu Ala Leu  
690 695 700

Phe Gly Lys Gln Gly Phe Phe Pro Asp Ser Val Asn Lys Ala Leu Tyr  
705 710 715 720

Trp Val Asn Gly Gln Val Pro Asp Gly Val Ser Lys Val Leu Val Asp  
725 730 735

His Phe Gly Tyr Thr Lys Asp Asp Lys His Glu Gln Asp Met Val Asn  
740 745 750

Gly Ile Met Leu Ser Val Glu Lys Leu Ile Lys Asp Leu Lys Ser Lys  
755 760 765

Glu Val Pro Glu Ala Arg Ala Tyr Leu Arg Ile Leu Gly Glu Glu Leu  
 770 775 780

Gly Phe Ala Ser Leu His Asp Leu Gln Leu Leu Gly Lys Leu Leu Leu  
 785 790 795 800

Met Gly Ala Arg Thr Leu Gln Gly Ile Pro Gln Met Ile Gly Glu Val  
 805 810 815

Ile Arg Lys Gly Ser Lys Asn Asp Phe Phe Leu His Tyr Ile Phe Met  
 820 825 830

Glu Asn Ala Phe Glu Leu Pro Thr Gly Ala Gly Leu Gln Leu Gln Ile  
 835 840 845

Ser Ser Ser Gly Val Ile Ala Pro Gly Ala Lys Ala Gly Val Lys Leu  
 850 855 860

Glu Val Ala Asn Met Gln Ala Glu Leu Val Ala Lys Pro Ser Val Ser  
 865 870 875 880

Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile Pro Asp Phe Ala Arg  
 885 890 895

Ser Gly Val Gln Met Asn Thr Asn Phe Phe His Glu Ser Gly Leu Glu  
 900 905 910

Ala His Val Ala Leu Lys Pro Gly Lys Leu Lys Phe Ile Ile Pro Ser  
 915 920 925

Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly Asn Thr Leu His Leu  
 930 935 940

Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro Leu Ile Glu Asn Arg  
 945 950 955 960

Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro Gly Leu Asn Tyr Cys  
 965 970 975

Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr Asp Ser Ala Ser Tyr  
 980 985 990

Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu Glu Leu Arg Pro Thr  
 995 1000 1005

Gly Glu Ile Glu Gln Tyr Ser Val Ser Ala Thr Tyr Glu Leu Gln  
1010 1015 1020

Arg Glu Asp Arg Ala Leu Val Asp Thr Leu Lys Phe Val Thr Gln  
1025 1030 1035

Ala Glu Gly Ala Lys Gln Thr Glu Ala Thr Met Thr Phe Lys Tyr  
1040 1045 1050

Asn Arg Gln Ser Met Thr Leu Ser Ser Glu Val Gln Ile Pro Asp  
1055 1060 1065

Phe Asp Val Asp Leu Gly Thr Ile Leu Arg Val Asn Asp Glu Ser  
1070 1075 1080

Thr Glu Gly Lys Thr Ser Tyr Arg Leu Thr Leu Asp Ile Gln Asn  
1085 1090 1095

Lys Lys Ile Thr Glu Val Ala Leu Met Gly His Leu Ser Cys Asp  
1100 1105 1110

Thr Lys Glu Glu Arg Lys Ile Lys Gly Val Ile Ser Ile Pro Arg  
1115 1120 1125

Leu Gln Ala Glu Ala Arg Ser Glu Ile Leu Ala His Trp Ser Pro  
1130 1135 1140

Ala Lys Leu Leu Leu Gln Met Asp Ser Ser Ala Thr Ala Tyr Gly  
1145 1150 1155

Ser Thr Val Ser Lys Arg Val Ala Trp His Tyr Asp Glu Glu Lys  
1160 1165 1170

Ile Glu Phe Glu Trp Asn Thr Gly Thr Asn Val Asp Thr Lys Lys  
1175 1180 1185

Met Thr Ser Asn Phe Pro Val Asp Leu Ser Asp Tyr Pro Lys Ser  
1190 1195 1200

Leu His Met Tyr Ala Asn Arg Leu Leu Asp His Arg Val Pro Gln  
1205 1210 1215

Thr Asp Met Thr Phe Arg His Val Gly Ser Lys Leu Ile Val Ala  
1220 1225 1230

Met Ser Ser Trp Leu Gln Lys Ala Ser Gly Ser Leu Pro Tyr Thr  
1235 1240 1245

Gln Thr Leu Gln Asp His Leu Asn Ser Leu Lys Glu Phe Asn Leu  
1250 1255 1260

Gln Asn Met Gly Leu Pro Asp Phe His Ile Pro Glu Asn Leu Phe  
1265 1270 1275

Leu Lys Ser Asp Gly Arg Val Lys Tyr Thr Leu Asn Lys Asn Ser  
1280 1285 1290

Leu Lys Ile Glu Ile Pro Leu Pro Phe Gly Gly Lys Ser Ser Arg  
1295 1300 1305

Asp Leu Lys Met Leu Glu Thr Val Arg Thr Pro Ala Leu His Phe  
1310 1315 1320

Lys Ser Val Gly Phe His Leu Pro Ser Arg Glu Phe Gln Val Pro  
1325 1330 1335

Thr Phe Thr Ile Pro Lys Leu Tyr Gln Leu Gln Val Pro Leu Leu  
1340 1345 1350

Gly Val Leu Asp Leu Ser Thr Asn Val Tyr Ser Asn Leu Tyr Asn  
1355 1360 1365

Trp Ser Ala Ser Tyr Ser Gly Gly Asn Thr Ser Thr Asp His Phe  
1370 1375 1380

Ser Leu Arg Ala Arg Tyr His Met Lys Ala Asp Ser Val Val Asp  
1385 1390 1395

.,  
Leu Leu Ser Tyr Asn Val Gln Gly Ser Gly Glu Thr Thr Tyr Asp  
1400 1405 1410

His Lys Asn Thr Phe Thr Leu Ser Cys Asp Gly Ser Leu Arg His  
1415 1420 1425

Lys Phe Leu Asp Ser Asn Ile Lys Phe Ser His Val Glu Lys Leu  
1430 1435 1440

Gly Asn Asn Pro Val Ser Lys Gly Leu Leu Ile Phe Asp Ala Ser  
1445 1450 1455

Ser Ser Trp Gly Pro Gln Met Ser Ala Ser Val His Leu Asp Ser  
 1460 1465 1470

Lys Lys Lys Gln His Leu Phe Val Lys Glu Val Lys Ile Asp Gly  
 1475 1480 1485

Gln Phe Arg Val Ser Ser Phe Tyr Ala Lys Gly Thr Tyr Gly Leu  
 1490 1495 1500

Ser Cys Gln Arg Asp Pro Asn Thr Gly Arg Leu Asn Gly Glu Ser  
 1505 1510 1515

Asn Leu Arg Phe Asn Ser Ser Tyr Leu Gln Gly Thr Asn Gln Ile  
 1520 1525 1530

Thr Gly Arg Tyr Glu Asp Gly Thr Leu Ser Leu Thr Ser Thr Ser  
 1535 1540 1545

Asp Leu Gln Ser Gly Ile Ile Lys Asn Thr Ala Ser Leu Lys Tyr  
 1550 1555 1560

Glu Asn Tyr Glu Leu Thr Leu Lys Ser Asp Thr Asn Gly Lys Tyr  
 1565 1570 1575

Lys Asn Phe Ala Thr Ser Asn Lys Met Asp Met Thr Phe Ser Lys  
 1580 1585 1590

Gln Asn Ala Leu Leu Arg Ser Glu Tyr Gln Ala Asp Tyr Glu Ser  
 1595 1600 1605

Leu Arg Phe Phe Ser Leu Leu Ser Gly Ser Leu Asn Ser His Gly  
 1610 1615 1620

Leu Glu Leu Asn Ala Asp Ile Leu Gly Thr Asp Lys Ile Asn Ser  
 1625 1630 1635

Gly Ala His Lys Ala Thr Leu Arg Ile Gly Gln Asp Gly Ile Ser  
 1640 1645 1650

Thr Ser Ala Thr Thr Asn Leu Lys Cys Ser Leu Leu Val Leu Glu  
 1655 1660 1665

Asn Glu Leu Asn Ala Glu Leu Gly Leu Ser Gly Ala Ser Met Lys  
 1670 1675 1680

Leu Thr Thr Asn Gly Arg Phe Arg Glu His Asn Ala Lys Phe Ser  
 1685 1690 1695

Leu Asp Gly Lys Ala Ala Leu Thr Glu Leu Ser Leu Gly Ser Ala  
 1700 1705 1710

Tyr Gln Ala Met Ile Leu Gly Val Asp Ser Lys Asn Ile Phe Asn  
 1715 1720 1725

Phe Lys Val Ser Gln Glu Gly Leu Lys Leu Ser Asn Asp Met Met  
 1730 1735 1740

Gly Ser Tyr Ala Glu Met Lys Phe Asp His Thr Asn Ser Leu Asn  
 1745 1750 1755

Ile Ala Gly Leu Ser Leu Asp Phe Ser Ser Lys Leu Asp Asn Ile  
 1760 1765 1770

Tyr Ser Ser Asp Lys Phe Tyr Lys Gln Thr Val Asn Leu Gln Leu  
 1775 1780 1785

Gln Pro Tyr Ser Leu Val Thr Thr Leu Asn Ser Asp Leu Lys Tyr  
 1790 1795 1800

Asn Ala Leu Asp Leu Thr Asn Asn Gly Lys Leu Arg Leu Glu Pro  
 1805 1810 1815

Leu Lys Leu His Val Ala Gly Asn Leu Lys Gly Ala Tyr Gln Asn  
 1820 1825 1830

Asn Glu Ile Lys His Ile Tyr Ala Ile Ser Ser Ala Ala Leu Ser  
 1835 1840 1845

Ala Ser Tyr Lys Ala Asp Thr Val Ala Lys Val Gln Gly Val Glu  
 1850 1855 1860

Phe Ser His Arg Leu Asn Thr Asp Ile Ala Gly Leu Ala Ser Ala  
 1865 1870 1875

Ile Asp Met Ser Thr Asn Tyr Asn Ser Asp Ser Leu His Phe Ser  
 1880 1885 1890

Asn Val Phe Arg Ser Val Met Ala Pro Phe Thr Met Thr Ile Asp  
 1895 1900 1905

Ala His Thr Asn Gly Asn Gly Lys Leu Ala Leu Trp Gly Glu His  
1910 1915 1920

Thr Gly Gln Leu Tyr Ser Lys Phe Leu Leu Lys Ala Glu Pro Leu  
1925 1930 1935

Ala Phe Thr Phe Ser His Asp Tyr Lys Gly Ser Thr Ser His His  
1940 1945 1950

Leu Val Ser Arg Lys Ser Ile Ser Ala Ala Leu Glu His Lys Val  
1955 1960 1965

Ser Ala Leu Leu Thr Pro Ala Glu Gln Thr Gly Thr Trp Lys Leu  
1970 1975 1980

Lys Thr Gin Phe Asn Asn Asn Glu Tyr Ser Gln Asp Leu Asp Ala  
1985 1990 1995

Tyr Asn Thr Lys Asp Lys Ile Gly Val Glu Leu Thr Gly Arg Thr  
2000 2005 2010

Leu Ala Asp Leu Thr Leu Leu Asp Ser Pro Ile Lys Val Pro Leu  
2015 2020 2025

Leu Leu Ser Glu Pro Ile Asn Ile Ile Asp Ala Leu Glu Met Arg  
2030 2035 2040

Asp Ala Val Glu Lys Pro Gln Glu Phe Thr Ile Val Ala Phe Val  
2045 2050 2055

Lys Tyr Asp Lys Asn Gln Asp Val His Ser Ile Asn Leu Pro Phe  
2060 2065 2070

Phe Glu Thr Leu Gln Glu Tyr Phe Glu Arg Asn Arg Gln Thr Ile  
2075 2080 2085

Ile Val Val Leu Glu Asn Val Gln Arg Asn Leu Lys His Ile Asn  
2090 2095 2100

Ile Asp Gln Phe Val Arg Lys Tyr Arg Ala Ala Leu Gly Lys Leu  
2105 2110 2115

Pro Gln Gln Ala Asn Asp Tyr Leu Asn Ser Phe Asn Trp Glu Arg  
2120 2125 2130

Gln Val Ser His Ala Lys Glu Lys Leu Thr Ala Leu Thr Lys Lys  
2135 2140 2145

Tyr Arg Ile Thr Glu Asn Asp Ile Gln Ile Ala Leu Asp Asp Ala  
2150 2155 2160

Lys Ile Asn Phe Asn Glu Lys Leu Ser Gln Leu Gln Thr Tyr Met  
2165 2170 2175

Ile Gln Phe Asp Gln Tyr Ile Lys Asp Ser Tyr Asp Leu His Asp  
2180 2185 2190

Leu Lys Ile Ala Ile Ala Asn Ile Ile Asp Glu Ile Ile Glu Lys  
2195 2200 2205

Leu Lys Ser Leu Asp Glu His Tyr His Ile Arg Val Asn Leu Val  
2210 2215 2220

Lys Thr Ile His Asp Leu His Leu Phe Ile Glu Asn Ile Asp Phe  
2225 2230 2235

Asn Lys Ser Gly Ser Ser Thr Ala Ser Trp Ile Gln Asn Val Asp  
2240 2245 2250

Thr Lys Tyr Gln Ile Arg Ile Gln Ile Gln Glu Lys Leu Gln Gln  
2255 2260 2265

Leu Lys Arg His Ile Gln Asn Ile Asp Ile Gln His Leu Ala Gly  
2270 2275 2280

Lys Leu Lys Gln His Ile Glu Ala Ile Asp Val Arg Val Leu Leu  
2285 2290 2295

Asp Gln Leu Gly Thr Thr Ile Ser Phe Glu Arg Ile Asn Asp Val  
2300 2305 2310

Leu Glu His Val Lys His Phe Val Ile Asn Leu Ile Gly Asp Phe  
2315 2320 2325

Glu Val Ala Glu Lys Ile Asn Ala Phe Arg Ala Lys Val His Glu  
2330 2335 2340

Leu Ile Glu Arg Tyr Glu Val Asp Gln Gln Ile Gln Val Leu Met  
2345 2350 2355

Asp Lys Leu Val Glu Leu Ala His Gln Tyr Lys Leu Lys Glu Thr  
2360 2365 2370

Ile Gln Lys Leu Ser Asn Val Leu Gln Gln Val Lys Ile Lys Asp  
2375 2380 2385

Tyr Phe Glu Lys Leu Val Gly Phe Ile Asp Asp Ala Val Lys Lys  
2390 2395 2400

Leu Asn Glu Leu Ser Phe Lys Thr Phe Ile Glu Asp Val Asn Lys  
2405 2410 2415

Phe Leu Asp Met Leu Ile Lys Lys Leu Lys Ser Phe Asp Tyr His  
2420 2425 2430

Gln Phe Val Asp Glu Thr Asn Asp Lys Ile Arg Glu Val Thr Gln  
2435 2440 2445

Arg Leu Asn Gly Glu Ile Gln Ala Leu Glu Leu Pro Gln Lys Ala  
2450 2455 2460

Glu Ala Leu Lys Leu Phe Leu Glu Glu Thr Lys Ala Thr Val Ala  
2465 2470 2475

Val Tyr Leu Glu Ser Leu Gln Asp Thr Lys Ile Thr Leu Ile Ile  
2480 2485 2490

Asn Trp Leu Gln Glu Ala Leu Ser Ser Ala Ser Leu Ala His Met  
2495 2500 2505

Lys Ala Lys Phe Arg Glu Thr Leu Glu Asp Thr Arg Asp Arg Met  
2510 2515 2520

Tyr Gln Met Asp Ile Gln Gln Glu Leu Gln Arg Tyr Leu Ser Leu  
2525 2530 2535

Val Gly Gln Val Tyr Ser Thr Leu Val Thr Tyr Ile Ser Asp Trp  
2540 2545 2550

Trp Thr Leu Ala Ala Lys Asn Leu Thr Asp Phe Ala Glu Gln Tyr  
2555 2560 2565

Ser Ile Gln Asp Trp Ala Lys Arg Met Lys Ala Leu Val Glu Gln  
2570 2575 2580

Gly Phe Thr Val Pro Glu Ile Lys Thr Ile Leu Gly Thr Met Pro  
2585 2590 2595

Ala Phe Glu Val Ser Leu Gln Ala Leu Gln Lys Ala Thr Phe Gln  
2600 2605 2610

Thr Pro Asp Phe Ile Val Pro Leu Thr Asp Leu Arg Ile Pro Ser  
2615 2620 2625

Val Gln Ile Asn Phe Lys Asp Leu Lys Asn Ile Lys Ile Pro Ser  
2630 2635 2640

Arg Phe Ser Thr Pro Glu Phe Thr Ile Leu Asn Thr Phe His Ile  
2645 2650 2655

Pro Ser Phe Thr Ile Asp Phe Val Glu Met Lys Val Lys Ile Ile  
2660 2665 2670

Arg Thr Ile Asp Gln Met Leu Asn Ser Glu Leu Gln Trp Pro Val  
2675 2680 2685

Pro Asp Ile Tyr Leu Arg Asp Leu Lys Val Glu Asp Ile Pro Leu  
2690 2695 2700

Ala Arg Ile Thr Leu Pro Asp Phe Arg Leu Pro Glu Ile Ala Ile  
2705 2710 2715

Pro Glu Phe Ile Ile Pro Thr Leu Asn Leu Asn Asp Phe Gln Val  
2720 2725 2730

Pro Asp Leu His Ile Pro Glu Phe Gln Leu Pro His Ile Ser His  
2735 2740 2745

Thr Ile Glu Val Pro Thr Phe Gly Lys Leu Tyr Ser Ile Leu Lys  
2750 2755 2760

Ile Gln Ser Pro Leu Phe Thr Leu Asp Ala Asn Ala Asp Ile Gly  
2765 2770 2775

Asn Gly Thr Thr Ser Ala Asn Glu Ala Gly Ile Ala Ala Ser Ile  
2780 2785 2790

Thr Ala Lys Gly Glu Ser Lys Leu Glu Val Leu Asn Phe Asp Phe  
2795 2800 2805

Gln Ala Asn Ala Gln Leu Ser Asn Pro Lys Ile Asn Pro Leu Ala  
2810 2815 2820

Leu Lys Glu Ser Val Lys Phe Ser Ser Lys Tyr Leu Arg Thr Glu  
2825 2830 2835

His Gly Ser Glu Met Leu Phe Phe Gly Asn Ala Ile Glu Gly Lys  
2840 2845 2850

Ser Asn Thr Val Ala Ser Leu His Thr Glu Lys Asn Thr Leu Glu  
2855 2860 2865

Leu Ser Asn Gly Val Ile Val Lys Ile Asn Asn Gln Leu Thr Leu  
2870 2875 2880

Asp Ser Asn Thr Lys Tyr Phe His Lys Leu Asn Ile Pro Lys Leu  
2885 2890 2895

Asp Phe Ser Ser Gln Ala Asp Leu Arg Asn Glu Ile Lys Thr Leu  
2900 2905 2910

Leu Lys Ala Gly His Ile Ala Trp Thr Ser Ser Gly Lys Gly Ser  
2915 2920 2925

Trp Lys Trp Ala Cys Pro Arg Phe Ser Asp Glu Gly Thr His Glu  
2930 2935 2940

Ser Gln Ile Ser Phe Thr Ile Glu Gly Pro Leu Thr Ser Phe Gly  
2945 2950 2955

Leu Ser Asn Lys Ile Asn Ser Lys His Leu Arg Val Asn Gln Asn  
2960 2965 2970

Leu Val Tyr Glu Ser Gly Ser Leu Asn Phe Ser Lys Leu Glu Ile  
2975 2980 2985

Gln Ser Gln Val Asp Ser Gln His Val Gly His Ser Val Leu Thr  
2990 2995 3000

Ala Lys Gly Met Ala Leu Phe Gly Glu Gly Lys Ala Glu Phe Thr  
3005 3010 3015

Gly Arg His Asp Ala His Leu Asn Gly Lys Val Ile Gly Thr Leu  
3020 3025 3030

Lys Asn Ser Leu Phe Phe Ser Ala Gln Pro Phe Glu Ile Thr Ala  
3035 3040 3045

Ser Thr Asn Asn Glu Gly Asn Leu Lys Val Arg Phe Pro Leu Arg  
3050 3055 3060

Leu Thr Gly Lys Ile Asp Phe Leu Asn Asn Tyr Ala Leu Phe Leu  
3065 3070 3075

Ser Pro Ser Ala Gln Gln Ala Ser Trp Gln Val Ser Ala Arg Phe  
3080 3085 3090

Asn Gln Tyr Lys Tyr Asn Gln Asn Phe Ser Ala Gly Asn Asn Glu  
3095 3100 3105

Asn Ile Met Glu Ala His Val Gly Ile Asn Gly Glu Ala Asn Leu  
3110 3115 3120

Asp Phe Leu Asn Ile Pro Leu Thr Ile Pro Glu Met Arg Leu Pro  
3125 3130 3135

Tyr Thr Ile Ile Thr Thr Pro Pro Leu Lys Asp Phe Ser Leu Trp  
3140 3145 3150

Glu Lys Thr Gly Leu Lys Glu Phe Leu Lys Thr Thr Lys Gln Ser  
3155 3160 3165

Phe Asp Leu Ser Val Lys Ala Gln Tyr Lys Lys Asn Lys His Arg  
3170 3175 3180

His Ser Ile Thr Asn Pro Leu Ala Val Leu Cys Glu Phe Ile Ser  
3185 3190 3195

Gln Ser Ile Lys Ser Phe Asp Arg His Phe Glu Lys Asn Arg Asn  
3200 3205 3210

Asn Ala Leu Asp Phe Val Thr Lys Ser Tyr Asn Glu Thr Lys Ile  
3215 3220 3225

Lys Phe Asp Lys Tyr Lys Ala Glu Lys Ser His Asp Glu Leu Pro  
3230 3235 3240

Arg Thr Phe Gln Ile Pro Gly Tyr Thr Val Pro Val Val Asn Val  
3245 3250 3255

Glu Val Ser Pro Phe Thr Ile Glu Met Ser Ala Phe Gly Tyr Val  
3260 3265 3270

Phe Pro Lys Ala Val Ser Met Pro Ser Phe Ser Ile Leu Gly Ser  
3275 3280 3285

Asp Val Arg Val Pro Ser Tyr Thr Leu Ile Leu Pro Ser Leu Glu  
3290 3295 3300

Leu Pro Val Leu His Val Pro Arg Asn Leu Lys Leu Ser Leu Pro  
3305 3310 3315

Asp Phe Lys Glu Leu Cys Thr Ile Ser His Ile Phe Ile Pro Ala  
3320 3325 3330

Met Gly Asn Ile Thr Tyr Asp Phe Ser Phe Lys Ser Ser Val Ile  
3335 3340 3345

Thr Leu Asn Thr Asn Ala Glu Leu Phe Asn Gln Ser Asp Ile Val  
3350 3355 3360

Ala His Leu Leu Ser Ser Ser Ser Val Ile Asp Ala Leu Gln  
3365 3370 3375

Tyr Lys Leu Glu Gly Thr Thr Arg Leu Thr Arg Lys Arg Gly Leu  
3380 3385 3390

Lys Leu Ala Thr Ala Leu Ser Leu Ser Asn Lys Phe Val Glu Gly  
3395 3400 3405

Ser His Asn Ser Thr Val Ser Leu Thr Thr Lys Asn Met Glu Val  
3410 3415 3420

Ser Val Ala Thr Thr Thr Lys Ala Gln Ile Pro Ile Leu Arg Met  
3425 3430 3435

Asn Phe Lys Gln Glu Leu Asn Gly Asn Thr Lys Ser Lys Pro Thr  
3440 3445 3450

Val Ser Ser Ser Met Glu Phe Lys Tyr Asp Phe Asn Ser Ser Met  
3455 3460 3465

Leu Tyr Ser Thr Ala Lys Gly Ala Val Asp His Lys Leu Ser Leu  
3470 3475 3480

Glu Ser Leu Thr Ser Tyr Phe Ser Ile Glu Ser Ser Thr Lys Gly  
3485 3490 3495

Asp Val Lys Gly Ser Val Leu Ser Arg Glu Tyr Ser Gly Thr Ile  
3500 3505 3510

Ala Ser Glu Ala Asn Thr Tyr Leu Asn Ser Lys Ser Thr Arg Ser  
3515 3520 3525

Ser Val Lys Leu Gln Gly Thr Ser Lys Ile Asp Asp Ile Trp Asn  
3530 3535 3540

Leu Glu Val Lys Glu Asn Phe Ala Gly Glu Ala Thr Leu Gln Arg  
3545 3550 3555

Ile Tyr Ser Leu Trp Glu His Ser Thr Lys Asn His Leu Gln Leu  
3560 3565 3570

Glu Gly Leu Phe Phe Thr Asn Gly Glu His Thr Ser Lys Ala Thr  
3575 3580 3585

Leu Glu Leu Ser Pro Trp Gln Met Ser Ala Leu Val Gln Val His  
3590 3595 3600

Ala Ser Gln Pro Ser Ser Phe His Asp Phe Pro Asp Leu Gly Gln  
3605 3610 3615

Glu Val Ala Leu Asn Ala Asn Thr Lys Asn Gln Lys Ile Arg Trp  
3620 3625 3630

Lys Asn Glu Val Arg Ile His Ser Gly Ser Phe Gln Ser Gln Val  
3635 3640 3645

Glu Leu Ser Asn Asp Gln Glu Lys Ala His Leu Asp Ile Ala Gly  
3650 3655 3660

Ser Leu Glu Gly His Leu Arg Phe Leu Lys Asn Ile Ile Leu Pro  
3665 3670 3675

Val Tyr Asp Lys Ser Leu Trp Asp Phe Leu Lys Leu Asp Val Thr  
3680 3685 3690

Thr Ser Ile Gly Arg Arg Gln His Leu Arg Val Ser Thr Ala Phe  
3695 3700 3705

Val Tyr Thr Lys Asn Pro Asn Gly Tyr Ser Phe Ser Ile Pro Val  
3710 3715 3720

Lys Val Leu Ala Asp Lys Phe Ile Ile Pro Gly Leu Lys Leu Asn  
3725 3730 3735

Asp Leu Asn Ser Val Leu Val Met Pro Thr Phe His Val Pro Phe  
3740 3745 3750

Thr Asp Leu Gln Val Pro Ser Cys Lys Leu Asp Phe Arg Glu Ile  
3755 3760 3765

Gln Ile Tyr Lys Lys Leu Arg Thr Ser Ser Phe Ala Leu Asn Leu  
3770 3775 3780

Pro Thr Leu Pro Glu Val Lys Phe Pro Glu Val Asp Val Leu Thr  
3785 3790 3795

Lys Tyr Ser Gln Pro Glu Asp Ser Leu Ile Pro Phe Phe Glu Ile  
3800 3805 3810

Thr Val Pro Glu Ser Gln Leu Thr Val Ser Gln Phe Thr Leu Pro  
3815 3820 3825

Lys Ser Val Ser Asp Gly Ile Ala Ala Leu Asp Leu Asn Ala Val  
3830 3835 3840

Ala Asn Lys Ile Ala Asp Phe Glu Leu Pro Thr Ile Ile Val Pro  
3845 3850 3855

Glu Gln Thr Ile Glu Ile Pro Ser Ile Lys Phe Ser Val Pro Ala  
3860 3865 3870

Gly Ile Ala Ile Pro Ser Phe Gln Ala Leu Thr Ala Arg Phe Glu  
3875 3880 3885

Val Asp Ser Pro Val Tyr Asn Ala Thr Trp Ser Ala Ser Leu Lys  
3890 3895 3900

Asn Lys Ala Asp Tyr Val Glu Thr Val Leu Asp Ser Thr Cys Ser  
3905 3910 3915

Ser Thr Val Gln Phe Leu Glu Tyr Glu Leu Asn Val Leu Gly Thr  
3920 3925 3930

His Lys Ile Glu Asp Gly Thr Leu Ala Ser Lys Thr Lys Gly Thr  
3935 3940 3945

Phe Ala His Arg Asp Phe Ser Ala Glu Tyr Glu Glu Asp Gly Lys  
3950 3955 3960

Tyr Glu Gly Leu Gln Glu Trp Glu Gly Lys Ala His Leu Asn Ile  
3965 3970 3975

Lys Ser Pro Ala Phe Thr Asp Leu His Leu Arg Tyr Gln Lys Asp  
3980 3985 3990

Lys Lys Gly Ile Ser Thr Ser Ala Ala Ser Pro Ala Val Gly Thr  
3995 4000 4005

Val Gly Met Asp Met Asp Glu Asp Asp Asp Phe Ser Lys Trp Asn  
4010 4015 4020

Phe Tyr Tyr Ser Pro Gln Ser Ser Pro Asp Lys Lys Leu Thr Ile  
4025 4030 4035

Phe Lys Thr Glu Leu Arg Val Arg Glu Ser Asp Glu Glu Thr Gln  
4040 4045 4050

Ile Lys Val Asn Trp Glu Glu Glu Ala Ala Ser Gly Leu Leu Thr  
4055 4060 4065

Ser Leu Lys Asp Asn Val Pro Lys Ala Thr Gly Val Leu Tyr Asp  
4070 4075 4080

Tyr Val Asn Lys Tyr His Trp Glu His Thr Gly Leu Thr Leu Arg  
4085 4090 4095

Glu Val Ser Ser Lys Leu Arg Arg Asn Leu Gln Asp His Ala Glu  
4100 4105 4110

Trp Val Tyr Gln Gly Ala Ile Arg Glu Ile Asp Asp Ile Asp Glu  
4115 4120 4125

Arg Phe Gln Lys Gly Ala Ser Gly Thr Thr Gly Thr Tyr Gln Glu  
4130 4135 4140

Trp Lys Asp Lys Ala Gln Asn Leu Tyr Gln Glu Leu Leu Thr Gln  
4145 4150 4155

Glu Gly Gln Ala Ser Phe Gln Gly Leu Lys Asp Asn Val Phe Asp  
4160 4165 4170

Gly Leu Val Arg Val Thr Gln Glu Phe His Met Lys Val Lys His  
4175 4180 4185

Leu Ile Asp Ser Leu Ile Asp Phe Leu Asn Phe Pro Arg Phe Gln  
4190 4195 4200

Phe Pro Gly Lys Pro Gly Ile Tyr Thr Arg Glu Glu Leu Cys Thr  
4205 4210 4215

Met Phe Ile Arg Glu Val Gly Thr Val Leu Ser Gln Val Tyr Ser  
4220 4225 4230

Lys Val His Asn Gly Ser Glu Ile Leu Phe Ser Tyr Phe Gln Asp  
4235 4240 4245

Leu Val Ile Thr Leu Pro Phe Glu Leu Arg Lys His Lys Leu Ile  
4250 4255 4260

Asp Val Ile Ser Met Tyr Arg Glu Leu Leu Lys Asp Leu Ser Lys  
4265 4270 4275

Glu Ala Gln Glu Val Phe Lys Ala Ile Gln Ser Leu Lys Thr Thr  
4280 4285 4290

Glu Val Leu Arg Asn Leu Gln Asp Leu Leu Gln Phe Ile Phe Gln  
4295 4300 4305

Leu Ile Glu Asp Asn Ile Lys Gln Leu Lys Glu Met Lys Phe Thr  
4310 4315 4320

Tyr Leu Ile Asn Tyr Ile Gln Asp Glu Ile Asn Thr Ile Phe Asn  
4325 4330 4335

Asp Tyr Ile Pro Tyr Val Phe Lys Leu Leu Lys Glu Asn Leu Cys  
4340 4345 4350

Leu Asn Leu His Lys Phe Asn Glu Phe Ile Gln Asn Glu Leu Gln  
4355 4360 4365

Glu Ala Ser Gln Glu Leu Gln Gln Ile His Gln Tyr Ile Met Ala  
4370 4375 4380

Leu Arg Glu Glu Tyr Phe Asp Pro Ser Ile Val Gly Trp Thr Val  
 4385 4390 4395

Lys Tyr Tyr Glu Leu Glu Glu Lys Ile Val Ser Leu Ile Lys Asn  
 4400 4405 4410

Leu Leu Val Ala Leu Lys Asp Phe His Ser Glu Tyr Ile Val Ser  
 4415 4420 4425

Ala Ser Asn Phe Thr Ser Gln Leu Ser Ser Gln Val Glu Gln Phe  
 4430 4435 4440

Leu His Arg Asn Ile Gln Glu Tyr Leu Ser Ile Leu Thr Asp Pro  
 4445 4450 4455

Asp Gly Lys Gly Lys Glu Lys Ile Ala Glu Leu Ser Ala Thr Ala  
 4460 4465 4470

Gln Glu Ile Ile Lys Ser Gln Ala Ile Ala Thr Lys Lys Ile Ile  
 4475 4480 4485

Ser Asp Tyr His Gln Gln Phe Arg Tyr Lys Leu Gln Asp Phe Ser  
 4490 4495 4500

Asp Gln Leu Ser Asp Tyr Tyr Glu Lys Phe Ile Ala Glu Ser Lys  
 4505 4510 4515

Arg Leu Ile Asp Leu Ser Ile Gln Asn Tyr His Thr Phe Leu Ile  
 4520 4525 4530

Tyr Ile Thr Glu Leu Leu Lys Lys Leu Gln Ser Thr Thr Val Met  
 4535 4540 4545

Asn Pro Tyr Met Lys Leu Ala Pro Gly Glu Leu Thr Ile Ile Leu  
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atg aag gtt ctg tgg gct gcg ttg ctg gtc aca ttc ctg gca gga tgc 108  
 Met Lys Val Leu Trp Ala Ala Leu Leu Val Thr Phe Leu Ala Gly Cys  
 5 10 15

cag gcc aag gtg gag caa gcg gtg gag aca gag ccg gag ccc gag ctg 156  
 Gln Ala Lys Val Glu Gln Ala Val Glu Thr Glu Pro Glu Pro Glu Leu

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cgc cag cag acc gag tgg cag agc ggc cag cgc tgg gaa ctg gca ctg Arg Gln Gln Thr Glu Trp Gln Ser Gly Gln Arg Trp Glu Leu Ala Leu	35	40	45	204
ggt cgc ttt tgg gat tac ctg cgc tgg gtg cag aca ctg tct gag cag Gly Arg Phe Trp Asp Tyr Leu Arg Trp Val Gln Thr Leu Ser Glu Gln	50	55	60	252
gtg cag gag gag ctg ctc agc tcc cag gtc acc cag gaa ctg agg gcg Val Gln Glu Glu Leu Leu Ser Ser Gln Val Thr Gln Glu Leu Arg Ala	65	70	75	300
ctg atg gac gag acc atg aag gag ttg aag gcc tac aaa tcg gaa ctg Leu Met Asp Glu Thr Met Lys Glu Leu Lys Ala Tyr Lys Ser Glu Leu	85	90	95	348
gag gaa caa ctg acc ccg gtg gcg gag gag acg cgg gca cgg ctg tcc Glu Glu Gln Leu Thr Pro Val Ala Glu Glu Thr Arg Ala Arg Leu Ser	100	105	110	396
aag gag ctg cag gcg cag gcc cgg ctg ggc gcg gac atg gag gac Lys Glu Leu Gln Ala Ala Gln Ala Arg Leu Gly Ala Asp Met Glu Asp	115	120	125	444
gtg tgc ggc cgc ctg gtg cag tac cgc ggc gag gtg cag gcc atg ctc Val Cys Gly Arg Leu Val Gln Tyr Arg Gly Glu Val Gln Ala Met Leu	130	135	140	492
ggc cag agc acc gag gag ctg cgg gtg cgc ctc gcc tcc cac ctg cgc Gly Gln Ser Thr Glu Leu Arg Val Arg Leu Ala Ser His Leu Arg	145	150	155	540
aag ctg cgt aag cgg ctc ctc cgc gat gcc gat gac ctg cag aag cgc Lys Leu Arg Lys Arg Leu Leu Arg Asp Ala Asp Asp Leu Gln Lys Arg	165	170	175	588
ctg gca gtg tac cag gcc ggg gcc cgc gag ggc gac cgc ggc ctc Leu Ala Val Tyr Gln Ala Gly Ala Arg Glu Gly Ala Glu Arg Gly Leu	180	185	190	636
agc gcc atc cgc gag cgc ctg ggg ccc ctg gtg gaa cag ggc cgc gtg Ser Ala Ile Arg Glu Arg Leu Gly Pro Leu Val Glu Gln Gly Arg Val	195	200	205	684
cgg gcc gcc act gtg ggc tcc ctg gcc ggc cag cgc cta cag gag cgg Arg Ala Ala Thr Val Gly Ser Leu Ala Gly Gln Pro Leu Gln Glu Arg	210	215	220	732
gcc cag gcc tgg ggc gag cgg ctg cgc gcg cgg atg gag gag atg ggc Ala Gln Ala Trp Gly Glu Arg Leu Arg Ala Arg Met Glu Glu Met Gly	225	230	235	780
agc cgg acc cgc gac cgc ctg gac gag gtg aag gag cag gtg gcg gag Ser Arg Thr Arg Asp Arg Leu Asp Glu Val Lys Glu Gln Val Ala Glu	245	250	255	828
gtg cgc gcc aag ctg gag gag cag gcc cag cag ata cgc ctg cag gcc Val Arg Ala Lys Leu Glu Glu Gln Ala Gln Gln Ile Arg Leu Gln Ala				876

260

265

270

gag gcc ttc cag gcc cgc ctc aag agc tgg ttc gag ccc ctg gtg gaa 924  
 Glu Ala Phe Gln Ala Arg Leu Lys Ser Trp Phe Glu Pro Leu Val Glu  
 275 280 285

gac atg cag cgc cag tgg gcc ggg ctg gtg gag aag gtg cag gct gcc 972  
 Asp Met Gln Arg Gln Trp Ala Gly Leu Val Glu Lys Val Gln Ala Ala  
 290 295 300

gtg ggc acc agc gcc gcc cct gtg ccc agc gac aat cac tga 1014  
 Val Gly Thr Ser Ala Ala Pro Val Pro Ser Asp Asn His  
 305 310 315

acgccgaagc ctgcagccat gcgaccac gccacccgt gcctcctgcc tccgcgcagc 1074  
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 aaagattcac caagttcac gc 1156

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Gln Ala Lys Val Glu Gln Ala Val Glu Thr Glu Pro Glu Pro Glu Leu  
 20 25 30

Arg Gln Gln Thr Glu Trp Gln Ser Gly Gln Arg Trp Glu Leu Ala Leu  
 35 40 45

Gly Arg Phe Trp Asp Tyr Leu Arg Trp Val Gln Thr Leu Ser Glu Gln  
 50 55 60

Val Gln Glu Glu Leu Leu Ser Ser Gln Val Thr Gln Glu Leu Arg Ala  
 65 70 75 80

Leu Met Asp Glu Thr Met Lys Glu Leu Lys Ala Tyr Lys Ser Glu Leu  
 85 90 95

Glu Glu Gln Leu Thr Pro Val Ala Glu Glu Thr Arg Ala Arg Leu Ser  
 100 105 110

Lys Glu Leu Gln Ala Ala Gln Ala Arg Leu Gly Ala Asp Met Glu Asp  
 115 120 125

Val Cys Gly Arg Leu Val Gln Tyr Arg Gly Glu Val Gln Ala Met Leu  
 130 135 140

Gly Gln Ser Thr Glu Glu Leu Arg Val Arg Leu Ala Ser His Leu Arg

145	150	155	160	
Lys Leu Arg Lys Arg Leu Leu Arg Asp Ala Asp Asp Leu Gln Lys Arg				
	165	170	175	
Leu Ala Val Tyr Gln Ala Gly Ala Arg Glu Gly Ala Glu Arg Gly Leu				
	180	185	190	
Ser Ala Ile Arg Glu Arg Leu Gly Pro Leu Val Glu Gln Gly Arg Val				
	195	200	205	
Arg Ala Ala Thr Val Gly Ser Leu Ala Gly Gln Pro Leu Gln Glu Arg				
	210	215	220	
Ala Gln Ala Trp Gly Glu Arg Leu Arg Ala Arg Met Glu Glu Met Gly				
	225	230	235	240
Ser Arg Thr Arg Asp Arg Leu Asp Glu Val Lys Glu Gln Val Ala Glu				
	245	250	255	
Val Arg Ala Lys Leu Glu Glu Gln Ala Gln Gln Ile Arg Leu Gln Ala				
	260	265	270	
Glu Ala Phe Gln Ala Arg Leu Lys Ser Trp Phe Glu Pro Leu Val Glu				
	275	280	285	
Asp Met Gln Arg Gln Trp Ala Gly Leu Val Glu Lys Val Gln Ala Ala				
	290	295	300	
Val Gly Thr Ser Ala Ala Pro Val Pro Ser Asp Asn His				
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Leu Gly Asp Val Ala Gly Arg Gly Asn Glu Lys Lys Pro Ser Ser				
	1	5	10	15
gtg agg gct ctg tcc att gtc ctc ccc atc gcc acg gag ctg ggt ctc				
Val Arg Ala Leu Ser Ile Val Leu Pro Ile Ala Thr Glu Leu Gly Leu				
	20	25	30	
tgg tct cgg ggg cag ctg tgt gac aga gcg tgc ctc tcc cta cgg tgc				
Trp Ser Arg Gly Gln Leu Cys Asp Arg Ala Cys Leu Ser Leu Arg Cys				
	35	40	45	
tcc tcg tct tcc ttt gcc tgg ggg tct tcc ttc tat gga aga act ggc				
			143	
			191	

Ser Ser Ser Ser Phe Ala Trp Gly Ser Ser Phe Tyr Gly Arg Thr Gly			
50	55	60	
ggc tta aga aca tca aca gca tca act ttg aca acc ccg tct atc aga			239
Gly Leu Arg Thr Ser Thr Ala Ser Thr Leu Thr Thr Pro Ser Ile Arg			
65	70	75	
aga cca cag agg atg agg tcc aca ttt gcc aca acc agg acg gct aca			287
Arg Pro Gln Arg Met Arg Ser Thr Phe Ala Thr Thr Arg Thr Ala Thr			
80	85	90	95
gct acc cct cga gac aga tgg tca gtc tgg agg atg acg tgg cgt gaa			335
Ala Thr Pro Arg Asp Arg Trp Ser Val Trp Arg Met Thr Trp Arg Glu			
100	105	110	
cat ctg cct gga gtc ccg ccc ctg ccc aga acc ctt cct gag acc tcg			383
His Leu Pro Gly Val Pro Pro Leu Pro Arg Thr Leu Pro Glu Thr Ser			
115	120	125	
ccg gcc ttg ttt tat tca aag aca gag aag acc aaa gca ttg cct gcc			431
Pro Ala Leu Phe Tyr Ser Lys Thr Glu Lys Thr Lys Ala Leu Pro Ala			
130	135	140	
aga gct ttg ttt tat ata ttt att cat ctg gga ggc aga aca ggc ttc			479
Arg Ala Leu Phe Tyr Ile Phe His Leu Gly Gly Arg Thr Gly Phe			
145	150	155	
gga cag tgc cca tgc aat ggc ttg ggt tgg gat ttt ggt ttc ttc ctt			527
Gly Gln Cys Pro Cys Asn Gly Leu Gly Trp Asp Phe Gly Phe Phe Leu			
160	165	170	175
tcc tgt gaa gga taa			542
Ser Cys Glu Gly			

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Arg Ala Leu Ser Ile Val Leu Pro Ile Ala Thr Glu Leu Gly Leu Trp  
 20 25 30

Ser Arg Gly Gln Leu Cys Asp Arg Ala Cys Leu Ser Leu Arg Cys Ser  
 35 40 45

Ser Ser Ser Phe Ala Trp Gly Ser Ser Phe Tyr Gly Arg Thr Gly Gly  
 50 55 60

Leu Arg Thr Ser Thr Ala Ser Thr Leu Thr Thr Pro Ser Ile Arg Arg  
 65 70 75 80

Pro Gln Arg Met Arg Ser Thr Phe Ala Thr Thr Arg Thr Ala Thr Ala  
 85 90 95

Thr Pro Arg Asp Arg Trp Ser Val Trp Arg Met Thr Trp Arg Glu His  
100 105 110

Leu Pro Gly Val Pro Pro Leu Pro Arg Thr Leu Pro Glu Thr Ser Pro  
115 120 125

Ala Leu Phe Tyr Ser Lys Thr Glu Lys Thr Lys Ala Leu Pro Ala Arg  
130 135 140

Ala Leu Phe Tyr Ile Phe Ile His Leu Gly Gly Arg Thr Gly Phe Gly  
145 150 155 160

Gln Cys Pro Cys Asn Gly Leu Gly Trp Asp Phe Gly Phe Phe Leu Ser  
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Cys Glu Gly

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Met Gly Leu Gly Leu Leu Leu Pro Leu  
1 5

ctg ctg ctc tgg act cg<sup>10</sup> ggg act cag ggg tcc gag ctg gac ccc aaa  
 Leu Leu Leu Trp Thr Arg Gly Thr Gln Gly Ser Glu Leu Asp Pro Lys  
 10 15 20 25

ggg cag cac gtc tgt gtg gcc agc agc ccc tct gct gag ctg cag tgc 149  
 Gly Gln His Val Cys Val Ala Ser Ser Pro Ser Ala Glu Leu Gln Cys  
           30             35             40

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tgc gca ggc tgg agg cag aag gat caa gaa tgc acc atc ccc atc tgt      197
Cys Ala Gly Trp Arg Gln Lys Asp Gln Glu Cys Thr Ile Pro Ile Cys
          45           50           55
```

gag ggg ccg gac gcc tgc cag aaa gac gag gtg tgt gtg aag ccg ggc 245  
 Glu Gly Pro Asp Ala Cys Gln Lys Asp Glu Val Cys Val Lys Pro Gly  
       60                 65                 70

ctc tgt cga tgc aag cct gga ttc ttt ggg gcc cac tgc agc tcc cgc 293  
 Leu Cys Arg Cys Lys Pro Gly Phe Phe Gly Ala His Cys Ser Ser Arg  
     75              80              85

tgc ccg ggc cag tac tgg ggc ccc gac tgc cgt gag agc tgc ccc tgc 341  
 Cys Pro Gly Gln Tyr Trp Gly Pro Asp Cys Arg Glu Ser Cys Pro Cys  
 90 95 100 105

cac ccg cac ggc cag tgc gag cca gcc acg ggc gcg tgc cag tgc cag 389  
His Pro His Gly Gln Cys Glu Pro Ala Thr Gly Ala Cys Gln Cys Gln

110	115	120	
gcc gac cgc tgg gga gcc cgc tgc gag ttc ccg tgc gcc tgc ggc ccc Ala Asp Arg Trp Gly Ala Arg Cys Glu Phe Pro Cys Ala Cys Gly Pro 125	130	135	437
cac ggg cgc tgc gac ccc gcg acc ggc gtg tgc cac tgc gaa ccc ggc His Gly Arg Cys Asp Pro Ala Thr Gly Val Cys His Cys Glu Pro Gly 140	145	150	485
tgg tgg tcg tcc acg tgc cgc ccc tgc cag tgc aac acc gcg gcg Trp Trp Ser Ser Thr Cys Arg Arg Pro Cys Gln Cys Asn Thr Ala Ala 155	160	165	533
gcg cgc tgc gag cag gcc acg ggc gcc tgc gtg tgc aag ccg ggc tgg Ala Arg Cys Glu Gln Ala Thr Gly Ala Cys Val Cys Lys Pro Gly Trp 170	175	180	581
185			
tgg ggg cgc cgc tgc agc ttc cgc tgc aac tgc cac gcc tcc ccc tgc Trp Gly Arg Arg Cys Ser Phe Arg Cys Asn Cys His Gly Ser Pro Cys 190	195	200	629
gag cag gac tcc ggc cgc tgc gcc tgc cgg ccc ggc tgg tgg ggt ccc Glu Gln Asp Ser Gly Arg Cys Ala Cys Arg Pro Gly Trp Trp Gly Pro 205	210	215	677
220			
gaa tgc cag cag cag tgc gag tgt gtg cgg ggc cgc tgc agc gcc gcc Glu Cys Gln Gln Cys Glu Cys Val Arg Gly Arg Cys Ser Ala Ala 225	230	235	725
240			
tcc ggc gag tgc acc tgc ccg ccc ggc ttc cgc gga gcg cgc tgc gag Ser Gly Glu Cys Thr Cys Pro Pro Gly Phe Arg Gly Ala Arg Cys Glu 235	240	245	773
250			
ctg ccc tgc ccg gca ggc agc cac ggg gtg cag tgc gca cac agc tgt Leu Pro Cys Pro Ala Gly Ser His Gly Val Gln Cys Ala His Ser Cys 255	260	265	821
270			
ggc cgc tgc aaa cac aat gag ccg tgc tct cca gac aca ggc agc tgt Gly Arg Cys Lys His Asn Glu Pro Cys Ser Pro Asp Thr Gly Ser Cys 275	280	285	869
290			
gag tcc tgc gag ccg ggc tgg aac ggg acc cag tgc cag cag ccc tgc Glu Ser Cys Glu Pro Gly Trp Asn Gly Thr Gln Cys Gln Gln Pro Cys 285	290	295	917
300			
ctg cct ggc acc ttt ggc gag agc tgc gaa cag cag tgc cct cac tgc Leu Pro Gly Thr Phe Gly Glu Ser Cys Glu Gln Gln Cys Pro His Cys 305	310	315	965
315			
cga cat ggg gag gcc tgt gag cca gat act ggc cac tgt cag cgc tgt Arg His Gly Glu Ala Cys Glu Pro Asp Thr Gly His Cys Gln Arg Cys 320	325	330	1013
330			
gac cct ggc tgg ctg ggg ccc agg tgt gaa gac ccc tgc ccc act ggt Asp Pro Gly Trp Leu Gly Pro Arg Cys Glu Asp Pro Cys Pro Thr Gly 335	340	345	1061
340			
acc ttt ggg gaa gac tgt ggc tct acc tgc ccc acc tgt gtt cag ggg Thr Phe Gly Glu Asp Cys Gly Ser Thr Cys Pro Thr Cys Val Gln Gly 345	350	355	1109
350			

350	355	360	
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gcc tgc tgc tgc tgg gcc ccc cga tca gac ctc aag gac agg cca gcg Ala Cys Cys Cys Trp Ala Pro Arg Ser Asp Leu Lys Asp Arg Pro Ala 445 450 455 1397			
aga gat gga gct acc gtg tcc agg atg aag ctg cag gtc tgg ggg aca Arg Asp Gly Ala Thr Val Ser Arg Met Lys Leu Gln Val Trp Gly Thr 460 465 470 1445			
ctg acc agc ttg ggc tcc acg ctg ccc tgc cgt tcc ctc agc tcc cac Leu Thr Ser Leu Gly Ser Thr Leu Pro Cys Arg Ser Leu Ser Ser His 475 480 485 1493			
aag cta ccc tgg gtg aca gtc tca cat cac gac ccg gag gtc ccc ttc Lys Leu Pro Trp Val Thr Val Ser His His Asp Pro Glu Val Pro Phe 490 495 500 505 1541			
aac cac agc ttc atc gag ccg ccc tct gcc ggc tgg gcc act gat gac Asn His Ser Phe Ile Glu Pro Pro Ser Ala Gly Trp Ala Thr Asp Asp 510 515 520 1589			
tcc ttc tca tcc gat cct gag tct gga gag gca gat gag gtt cct gcc Ser Phe Ser Ser Asp Pro Glu Ser Gly Glu Ala Asp Glu Val Pro Ala 525 530 535 1637			
tac tgt gtg cca ccc caa gaa ggg atg gtc cct gtg gcc cag gca ggg Tyr Cys Val Pro Pro Gln Glu Gly Met Val Pro Val Ala Gln Ala Gly 540 545 550 1685			
tcg tca gag gcc agc ctg gct gca ggt gct ttc ccg ccc cct gag gac Ser Ser Glu Ala Ser Leu Ala Ala Gly Ala Phe Pro Pro Pro Glu Asp 555 560 565 1733			
gcc tcc acg cca ttc gcc atc ccg cgc acc tcc agc cta gct ccg gcc Ala Ser Thr Pro Phe Ala Ile Pro Arg Thr Ser Ser Leu Ala Arg Ala 570 575 580 585 1781			
aag cgg cca tcg gtc tcc ttc gcg gaa ggt acc aag ttt gca cca cag Lys Arg Pro Ser Val Ser Phe Ala Glu Gly Thr Lys Phe Ala Pro Gln 1829			

590	595	600	
agt cgc cga agc tca ggg gag ctc tcc agc ccg ctc cga aag ccc aag Ser Arg Arg Ser Ser Gly Glu Leu Ser Ser Pro Leu Arg Lys Pro Lys			1877
605	610	615	
agg ctc tcc cgg ggg gcg cag tcg ggt cct gag ggc cg <sup>g</sup> gaa gcc gaa Arg Leu Ser Arg Gly Ala Gln Ser Gly Pro Glu Gly Arg Glu Ala Glu			1925
620	625	630	
gag tcc aca ggc cca gac gaa gca gaa gcc ccc gag tcc ttt ccg gc <sup>g</sup> Glu Ser Thr Gly Pro Asp Glu Ala Ala Pro Glu Ser Phe Pro Ala			1973
635	640	645	
gct gcc agt ccc ggg gat tca gcc act ggc cac cg <sup>g</sup> cgg ccc cca ctt Ala Ala Ser Pro Gly Asp Ser Ala Thr Gly His Arg Arg Pro Pro Leu			2021
650	655	660	665
ggt agc cgg aca gtg gct gag cac gtg gaa gcc att gag ggc agc gtc Gly Ser Arg Thr Val Ala Glu His Val Glu Ala Ile Glu Gly Ser Val			2069
670	675	680	
cag gag agc tcg ggc cct gtg acc acg atc tac atg ctg gca ggg aag Gln Glu Ser Ser Gly Pro Val Thr Thr Ile Tyr Met Leu Ala Gly Lys			2117
685	690	695	
ccc cgc gga tcc gaa ggc cct gtc cgc tct gtc ttc cgc cat ttt ggt Pro Arg Gly Ser Glu Gly Pro Val Arg Ser Val Phe Arg His Phe Gly			2165
700	705	710	
agc ttc cag aaa ggc cag gc <sup>g</sup> gaa gcc aag gtc aag agg gcc atc cct Ser Phe Gln Lys Gly Gln Ala Glu Ala Lys Val Lys Arg Ala Ile Pro			2213
715	720	725	
aag cct ccg cgc cag gcc ctg aat cgg aaa aag ggc agc cct ggc ctt Lys Pro Pro Arg Gln Ala Leu Asn Arg Lys Lys Gly Ser Pro Gly Leu			2261
730	735	740	745
gcc tct ggc tct gtc ggc cag agc ccc aac tca gcc cca aaa gct ggg Ala Ser Gly Ser Val Gly Gln Ser Pro Asn Ser Ala Pro Lys Ala Gly			2309
750	755	760	
ctt cct ggg gcc aca ggg cct atg gca gtc aga cca gag gaa gc <sup>g</sup> gtc Leu Pro Gly Ala Thr Gly Pro Met Ala Val Arg Pro Glu Glu Ala Val			2357
765	770	775	
cgg ggg ctg ggg gct ggc acc gag agt tca agg aga gcc cag gag cca Arg Gly Leu Gly Ala Gly Thr Glu Ser Ser Arg Arg Ala Gln Glu Pro			2405
780	785	790	
gtc tct ggc tgt ggc tcc cca gaa cag gat ccc cag aag cag gct gaa Val Ser Gly Cys Gly Ser Pro Glu Gln Asp Pro Gln Lys Gln Ala Glu			2453
795	800	805	
gag gaa agg cag gag gaa cct gag tat gag aat gtt gta ccc atc tcc Glu Glu Arg Gln Glu Glu Pro Glu Tyr Glu Asn Val Val Pro Ile Ser			2501
810	815	820	825
agg cca cca gaa ccc tga tgacctgaa ttggggagt gggagagtg Arg Pro Pro Glu Pro			2549

830

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															20
															25

Ser	Ser	Pro	Ser	Ala	Glu	Leu	Gln	Cys	Cys	Ala	Gly	Trp	Arg	Gln	Lys
															35
															40

Asp	Gln	Glu	Cys	Thr	Ile	Pro	Ile	Cys	Glu	Gly	Pro	Asp	Ala	Cys	Gln
															50
															55

Lys	Asp	Glu	Val	Cys	Val	Lys	Pro	Gly	Leu	Cys	Arg	Cys	Lys	Pro	Gly
															65
															70

Phe	Phe	Gly	Ala	His	Cys	Ser	Ser	Arg	Cys	Pro	Gly	Gln	Tyr	Trp	Gly
															85
															90

Pro Asp Cys Arg Glu Ser Cys Pro Cys His Pro His Gly Gln Cys Glu

100

105

110

Pro Ala Thr Gly Ala Cys Gln Cys Gln Ala Asp Arg Trp Gly Ala Arg  
115 120 125

Cys Glu Phe Pro Cys Ala Cys Gly Pro His Gly Arg Cys Asp Pro Ala  
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Thr Gly Val Cys His Cys Glu Pro Gly Trp Trp Ser Ser Thr Cys Arg  
145 150 155 160

Arg Pro Cys Gln Cys Asn Thr Ala Ala Ala Arg Cys Glu Gln Ala Thr  
165 170 175

Gly Ala Cys Val Cys Lys Pro Gly Trp Trp Gly Arg Arg Cys Ser Phe  
180 185 190

Arg Cys Asn Cys His Gly Ser Pro Cys Glu Gln Asp Ser Gly Arg Cys  
195 200 205

Ala Cys Arg Pro Gly Trp Trp Gly Pro Glu Cys Gln Gln Gln Cys Glu  
210 215 220

Cys Val Arg Gly Arg Cys Ser Ala Ala Ser Gly Glu Cys Thr Cys Pro  
225 230 235 240

Pro Gly Phe Arg Gly Ala Arg Cys Glu Leu Pro Cys Pro Ala Gly Ser  
245 250 255

His Gly Val Gln Cys Ala His Ser Cys Gly Arg Cys Lys His Asn Glu  
260 265 270

Pro Cys Ser Pro Asp Thr Gly Ser Cys Glu Ser Cys Glu Pro Gly Trp  
275 280 285

Asn Gly Thr Gln Cys Gln Gln Pro Cys Leu Pro Gly Thr Phe Gly Glu  
290 295 300

Ser Cys Glu Gln Gln Cys Pro His Cys Arg His Gly Glu Ala Cys Glu  
305 310 315 320

Pro Asp Thr Gly His Cys Gln Arg Cys Asp Pro Gly Trp Leu Gly Pro  
325 330 335

Arg Cys Glu Asp Pro Cys Pro Thr Gly Thr Phe Gly Glu Asp Cys Gly

340

345

350

Ser Thr Cys Pro Thr Cys Val Gln Gly Ser Cys Asp Thr Val Thr Gly  
355 360 365

Asp Cys Val Cys Ser Ala Gly Tyr Trp Gly Pro Ser Cys Asn Ala Ser  
370 375 380

Cys Pro Ala Gly Phe His Gly Asn Asn Cys Ser Val Pro Cys Glu Cys  
385 390 395 400

Pro Glu Gly Leu Cys His Pro Val Ser Gly Ser Cys Gln Pro Gly Ser  
405 410 415

Gly Ser Arg Asp Thr Ala Leu Ile Val Gly Ser Leu Val Pro Leu Leu  
420 425 430

Leu Leu Phe Leu Gly Leu Ala Cys Cys Ala Cys Cys Cys Cys Trp Ala Pro  
435 440 445

Arg Ser Asp Leu Lys Asp Arg Pro Ala Arg Asp Gly Ala Thr Val Ser  
450 455 460

Arg Met Lys Leu Gln Val Trp Gly Thr Leu Thr Ser Leu Gly Ser Thr  
465 470 475 480

Leu Pro Cys Arg Ser Leu Ser Ser His Lys Leu Pro Trp Val Thr Val  
485 490 495

Ser His His Asp Pro Glu Val Pro Phe Asn His Ser Phe Ile Glu Pro  
500 505 510

Pro Ser Ala Gly Trp Ala Thr Asp Asp Ser Phe Ser Ser Asp Pro Glu  
515 520 525

Ser Gly Glu Ala Asp Glu Val Pro Ala Tyr Cys Val Pro Pro Gln Glu  
530 535 540

Gly Met Val Pro Val Ala Gln Ala Gly Ser Ser Glu Ala Ser Leu Ala  
545 550 555 560

Ala Gly Ala Phe Pro Pro Pro Glu Asp Ala Ser Thr Pro Phe Ala Ile  
565 570 575

Pro Arg Thr Ser Ser Leu Ala Arg Ala Lys Arg Pro Ser Val Ser Phe

580

585

590

Ala Glu Gly Thr Lys Phe Ala Pro Gln Ser Arg Arg Ser Ser Gly Glu  
 595 600 605

Leu Ser Ser Pro Leu Arg Lys Pro Lys Arg Leu Ser Arg Gly Ala Gln  
 610 615 620

Ser Gly Pro Glu Gly Arg Glu Ala Glu Glu Ser Thr Gly Pro Asp Glu  
 625 630 635 640

Ala Glu Ala Pro Glu Ser Phe Pro Ala Ala Ala Ser Pro Gly Asp Ser  
 645 650 655

Ala Thr Gly His Arg Arg Pro Pro Leu Gly Ser Arg Thr Val Ala Glu  
 660 665 670

His Val Glu Ala Ile Glu Gly Ser Val Gln Glu Ser Ser Gly Pro Val  
 675 680 685

Thr Thr Ile Tyr Met Leu Ala Gly Lys Pro Arg Gly Ser Glu Gly Pro  
 690 695 700

Val Arg Ser Val Phe Arg His Phe Gly Ser Phe Gln Lys Gly Gln Ala  
 705 710 715 720

Glu Ala Lys Val Lys Arg Ala Ile Pro Lys Pro Pro Arg Gln Ala Leu  
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Asn Arg Lys Lys Gly Ser Pro Gly Leu Ala Ser Gly Ser Val Gly Gln  
 740 745 750

Ser Pro Asn Ser Ala Pro Lys Ala Gly Leu Pro Gly Ala Thr Gly Pro  
 755 760 765

Met Ala Val Arg Pro Glu Glu Ala Val Arg Gly Leu Gly Ala Gly Thr  
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Glu Ser Ser Arg Arg Ala Gln Glu Pro Val Ser Gly Cys Gly Ser Pro  
 785 790 795 800

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825

830

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48

ata tgt cgg att ggt tgt cag ttc aat tat caa gca tct gca acc tgc  
Ile Cys Arg Ile Gly Cys Gln Phe Asn Tyr Gln Ala Ser Ala Thr Cys  
20 25 30

96

aat tct gtt ggg gcg tct gtc gca act gta gtc acc gct gat aat cct  
Asn Ser Val Gly Ala Ser Val Ala Thr Val Val Thr Ala Asp Asn Pro  
35 40 45

144

cga cgt tca gtg tct ttc cct att tat tgt gca agc tta gca tat gca  
Arg Arg Ser Val Ser Phe Pro Ile Tyr Cys Ala Ser Leu Ala Tyr Ala  
50 55 60

192

agc agt aaa tac aac aat atc tcg tca gaa aca gtc gga atc gcc cat  
Ser Ser Lys Tyr Asn Ile Ser Ser Glu Thr Val Val Gly Ile Ala His  
65 70 75 80

240

ctg gaa cat aga caa tcc ctt gcg aaa gac ttc acg tgt tcc aat gcg  
Leu Glu His Arg Gln Ser Leu Ala Lys Asp Phe Thr Cys Ser Asn Ala  
85 90 95

288

agc caa gaa aca ttt gga caa aga agt ttt gtt att ctt gct gaa aac  
Ser Gln Glu Thr Phe Gly Gln Arg Ser Phe Val Ile Leu Ala Glu Asn  
100 105 110

336

aca aaa gac act gat gtg atg aaa agt tcc gtg gat aac gtt ttc aga  
Thr Lys Asp Thr Asp Val Met Lys Ser Ser Val Asp Asn Val Phe Arg  
115 120 125

384

aac aag aat agt atc ttc tac cag ctt agt cct ttt gtc aac tct gct  
Asn Lys Asn Ser Ile Phe Tyr Gln Leu Ser Pro Phe Val Asn Ser Ala  
130 135 140

432

cct cca cag cga tat gca aac ttt ttc gct gtt ctg aat aaa tgt tcc  
Pro Pro Gln Arg Tyr Ala Asn Phe Phe Ala Val Leu Asn Lys Cys Ser  
145 150 155 160

480

gaa act gca caa acg gag caa agc tct gac tat gga acg ttt tta aca  
Glu Thr Ala Gln Thr Glu Gln Ser Ser Asp Tyr Gly Thr Phe Leu Thr  
165 170 175

528

aaa gtt atg aat gtt act agt aaa tca caa caa cga ccc aat gat cca  
Lys Val Met Asn Val Thr Ser Lys Ser Gln Gln Arg Pro Asn Asp Pro  
180 185 190

576

agt gat cct gtc aag gtc aca aat ttc ctg cct caa gca att gca gga  
Ser Asp Pro Val Lys Val Thr Asn Phe Leu Pro Gln Ala Ile Ala Gly  
195 200 205

624

gcg aac gcc tat tct gac att ctg ctt gtg att aat tat aac gtg tct

672

Ala Asn Ala Tyr Ser Asp Ile Leu Leu Val Ile Asn Tyr Asn Val Ser			
210	215	220	
acc att acc gac aac gat gct acc gaa atc aaa agt gca tta gaa aaa		720	
Thr Ile Thr Asp Asn Asp Ala Thr Glu Ile Lys Ser Ala Leu Glu Lys			
225	230	235	240
caa aga tct cga cta tac att ctt ttt gtt caa acg tat ttc aac tac		768	
Gln Arg Ser Arg Leu Tyr Ile Leu Phe Val Gln Thr Tyr Phe Asn Tyr			
245	250	255	
act gat act tac tat gcc atg aac aaa ctg gcg att gcg agt gga gga		816	
Thr Asp Thr Tyr Tyr Ala Met Asn Lys Leu Ala Ile Ala Ser Gly Gly			
260	265	270	
gtg gcg att cga gtg aac act tat gat gat ttg agc acg ttc ttt gca		864	
Val Ala Ile Arg Val Asn Thr Tyr Asp Asp Leu Ser Thr Phe Phe Ala			
275	280	285	
caa tac ttc cca ctt ctc gtt gca aat gac att gtc gca aaa gca tat		912	
Gln Tyr Phe Pro Leu Leu Val Ala Asn Asp Ile Val Ala Lys Ala Tyr			
290	295	300	
gct gaa aac cca aga cct gga gtt gcg ttg aat aat gtc aat cta ctt		960	
Ala Glu Asn Pro Arg Pro Gly Val Ala Leu Asn Asn Val Asn Leu Leu			
305	310	315	320
gct caa caa tat gtt ctt ctt gta aca aat gag gat tca ttg gga gat		1008	
Ala Gln Gln Tyr Val Leu Leu Val Thr Asn Glu Asp Ser Leu Gly Asp			
325	330	335	
ggc ccg gtg cca gca tcg gta act gtt acc ggg att aat gtt aca caa		1056	
Gly Pro Val Pro Ala Ser Val Thr Val Thr Gly Ile Asn Val Thr Gln			
340	345	350	
cta cca aca att ggc gaa ctt caa tta ttc act ctt att cca gaa aag		1104	
Leu Pro Thr Ile Gly Glu Leu Gln Leu Phe Thr Leu Ile Pro Glu Lys			
355	360	365	
gct gga aaa ttc act cca ttg ttc tat tca tct tca tct ttt gat gac		1152	
Ala Gly Lys Phe Thr Pro Leu Phe Tyr Ser Ser Ser Ser Phe Asp Asp			
370	375	380	
ggg tca aaa att acc att aca tac agt gat gca aca aac cca gca aat		1200	
Gly Ser Lys Ile Thr Ile Thr Tyr Ser Asp Ala Thr Asn Pro Ala Asn			
385	390	395	400
cca att tat aat gga aat att acg tct gct tta aat gac tgc aaa tat		1248	
Pro Ile Tyr Asn Gly Asn Ile Thr Ser Ala Leu Asn Asp Cys Lys Tyr			
405	410	415	
tat gca aac aca aaa aat tac gcc tgg gcc tgt agt att tcc gaa atc		1296	
Tyr Ala Asn Thr Lys Asn Tyr Ala Trp Ala Cys Ser Ile Ser Glu Ile			
420	425	430	
gca tta tta tta caa ttt tca atg aga aat att cag atc gat aga gtt		1344	
Ala Leu Leu Leu Gln Phe Ser Met Arg Asn Ile Gln Ile Asp Arg Val			
435	440	445	
ttg aac ggt gaa acg att tcg aga acc ttc cca att act tgc ctt gga		1392	

Leu Asn Gly Glu Thr Ile Ser Arg Thr Phe Pro Ile Thr Cys Leu Gly			
450	455	460	
gca gat gta gga gac tgc ctc aac ggt gga aat cta aca gat gct ggt			1440
Ala Asp Val Gly Asp Cys Leu Asn Gly Gly Asn Leu Thr Asp Ala Gly			
465	470	475	480
tca tgc att tgc cca tta cag tgg aca gga act aac tgtcaa gct ccg			1488
Ser Cys Ile Cys Pro Leu Gln Trp Thr Gly Thr Asn Cys Gln Ala Pro			
485	490	495	
caa tgc ttg aat gga ggt aca ctg aaa act gat gac act tgt gca tgt			1536
Gln Cys Leu Asn Gly Gly Thr Leu Lys Thr Asp Asp Thr Cys Ala Cys			
500	505	510	
ctc gat agt ttc aaa gga gat ttt tgt gaa aca agt acc tct gtt tgc			1584
Leu Asp Ser Phe Lys Gly Asp Phe Cys Glu Thr Ser Thr Ser Val Cys			
515	520	525	
gct gga gct ccg aca tct ccg gac tat cgc tct gaa ctg agt tca ttg			1632
Ala Gly Ala Pro Thr Ser Pro Asp Tyr Arg Ser Glu Leu Ser Ser Leu			
530	535	540	
gta att gtt gct gat gtc aac gca tta tca aca agt agt cta agc aat			1680
Val Ile Val Ala Asp Val Asn Ala Leu Ser Thr Ser Ser Leu Ser Asn			
545	550	555	560
acg gta ccc gga ata act gga gtg cca att act gtc att cta tat ggc			1728
Thr Val Pro Gly Ile Thr Gly Val Pro Ile Thr Val Ile Leu Tyr Gly			
565	570	575	
gat gga aat gct cca aga att gtt cag tct aca act aac agt gag cat			1776
Asp Gly Asn Ala Pro Arg Ile Val Gln Ser Thr Thr Asn Ser Glu His			
580	585	590	
ctc tcc gag gta tta ggt gca ccg acg ggt acc aca act tca cca agt			1824
Leu Ser Glu Val Leu Gly Ala Pro Thr Gly Thr Thr Ser Pro Ser			
595	600	605	
tca acg gct tca cca gca cca tcc gca agt gat atg tat aag gct ctg			1872
Ser Thr Ala Ser Pro Ala Pro Ser Ala Ser Asp Met Tyr Lys Ala Leu			
610	615	620	
aat ttg gca ctt gac aat cag ctc acc gac cgt gca ttt gta att gta			1920
Asn Leu Ala Leu Asp Asn Gln Leu Thr Asp Arg Ala Phe Val Ile Val			
625	630	635	640
tac aca tca aat tcc aat gtc acc att gat cct gac ttt ttg atc cgt			1968
Tyr Thr Ser Asn Ser Asn Val Thr Ile Asp Pro Asp Phe Leu Ile Arg			
645	650	655	
ttg gca gtc aga aga gcc gaa gta cga gtg ttg tca act tcg gga act			2016
Leu Ala Val Arg Arg Ala Glu Val Arg Val Leu Ser Thr Ser Gly Thr			
660	665	670	
gaa agt caa aac tct ata aca tta tcg cta gtc gga aat gga att cct			2064
Glu Ser Gln Asn Ser Ile Thr Leu Ser Leu Val Gly Asn Gly Ile Pro			
675	680	685	
att gcg ata aat ggc gcg aaa gat ttc gaa aat tac ctg aca tac tac			2112

Ile Ala Ile Asn Gly Ala Lys Asp Phe Glu Asn Tyr Leu Thr Tyr Tyr			
690	695	700	
gtt gtt ccc tta ttc caa tca cta caa tac caa gtg aac act cca caa			2160
Val Val Pro Leu Phe Gln Ser Leu Gln Tyr Gln Val Asn Thr Pro Gln			
705	710	715	720
cga gtg ttc aat gtg ttc caa aca ggt caa ttc tac aac tct acg caa			2208
Arg Val Phe Asn Val Phe Gln Thr Gly Gln Phe Tyr Asn Ser Thr Gln			
725	730	735	
att tct atc cca gca gat tcc aca ttt gat aac gct aaa cca aat ctt			2256
Ile Ser Ile Pro Ala Asp Ser Thr Phe Asp Asn Ala Lys Pro Asn Leu			
740	745	750	
ttt gtg cat gtg tac gaa ggt cgc att aat tat tca gat cct tca aca			2304
Phe Val His Val Tyr Glu Gly Arg Ile Asn Tyr Ser Asp Pro Ser Thr			
755	760	765	
aat gga aac gag gtt ggc aat tct act ata tac ttt ctc cct tat gac			2352
Asn Gly Asn Glu Val Gly Asn Ser Thr Ile Tyr Phe Leu Pro Tyr Asp			
770	775	780	
ccc aca aaa cct atc aac tta att gtg aat aat aat ggc acg acc ggt			2400
Pro Thr Lys Pro Ile Asn Leu Ile Val Asn Asn Asn Gly Thr Thr Gly			
785	790	795	800
tac tac gca atc gaa gtc atc gga tat cta aag aca tca tat ggt ttc			2448
Tyr Tyr Ala Ile Glu Val Ile Gly Tyr Leu Lys Thr Ser Tyr Gly Phe			
805	810	815	
aat att gat aat gct aac gga tca aat gaa aac ctg aac tcg gga gta			2496
Asn Ile Asp Asn Ala Asn Gly Ser Asn Glu Asn Leu Asn Ser Gly Val			
820	825	830	
gta tat aac caa caa aac aca ttg aat atc tat tct gcg ccg ttt tca			2544
Val Tyr Asn Gln Gln Asn Thr Leu Asn Ile Tyr Ser Ala Pro Phe Ser			
835	840	845	
cag ctt cct aaa act gat cca tca aac ttc cca tat ctc aca ctt gga			2592
Gln Leu Pro Lys Thr Asp Pro Ser Asn Phe Pro Tyr Leu Thr Leu Gly			
850	855	860	
gaa att gcc agt aac gga aca gtt tta cct gca aca aca gtt ttg ttt			2640
Glu Ile Ala Ser Asn Gly Thr Val Leu Pro Ala Thr Thr Val Leu Phe			
865	870	875	880
aca aga aaa agt ggt gcg tcc tgt ttt tac agt cac ttc acc gtt ctt			2688
Thr Arg Lys Ser Gly Ala Ser Cys Phe Tyr Ser His Phe Thr Val Leu			
885	890	895	
gat gtc tgc tcc caa agc aca aca att gga tat cag gca cag ttg acc			2736
Asp Val Cys Ser Gln Ser Thr Thr Ile Gly Tyr Gln Ala Gln Leu Thr			
900	905	910	
aca aga aca agc acc ttg aca aat agg att caa caa ttt gtg ctg aca			2784
Thr Arg Thr Ser Thr Leu Thr Asn Arg Ile Gln Gln Phe Val Leu Thr			
915	920	925	
tgc ttt aaa aca agt tat gca aat aat gat act tcc tgc cat gga cat			2832

Cys	Phe	Lys	Thr	Ser	Tyr	Ala	Asn	Asn	Asp	Thr	Ser	Cys	His	Gly	His	
930																
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Gly	Ser	Pro	Met	Ala	Thr	Cys	Ala	Cys	Asn	Ala	Asp	Phe	Gly	Gly	Ile	
945																
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Asp	Cys	Thr	Glu	Pro	Ala	Cys	Val	Asn	Gly	Gly	Val	Arg	Asp	Gly	Ser	
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Val	Cys	Arg	Cys	Pro	Val	Arg	Phe	Tyr	Gly	Leu	Arg	Cys	Glu	Glu	Cys	
980													985			990
gag tct agg caa aat ctg cct ata aga aaa tta tcc aca cct aat tac															3024	
Glu	Ser	Arg	Gln	Asn	Leu	Pro	Ile	Arg	Lys	Leu	Ser	Thr	Pro	Asn	Tyr	
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																1005
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																1020
cct ttt gaa tca gaa cca gct tcg tct act gtc tcc gtg ata act															3114	
Pro	Phe	Glu	Ser	Glu	Pro	Ala	Ser	Ser	Thr	Val	Ser	Val	Ile	Thr		
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																1035
tca act act atg ctg cct tct acg tca act gtt gct cca agc aca															3159	
Ser	Thr	Thr	Met	Leu	Pro	Ser	Thr	Ser	Thr	Val	Ala	Pro	Ser	Thr		
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agc caa tca aca ata gtt tcc act gtt act aca cag tca cca agt															3204	
Ser	Gln	Ser	Thr	Ile	Val	Ser	Thr	Val	Thr	Gln	Ser	Pro	Ser			
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																1065
cct tca aca aca gct cca aaa caa gtc cga gct gct gca ttc att															3249	
Pro	Ser	Thr	Thr	Ala	Pro	Lys	Gln	Val	Arg	Ala	Ala	Ala	Phe	Ile		
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																1080
att gac tgc atg gga act gat gat tat gct ttc aat cag aca ttc															3294	
Ile	Asp	Cys	Met	Gly	Thr	Asp	Asp	Tyr	Ala	Phe	Asn	Gln	Thr	Phe		
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																1095
aaa tcg att gca cag tac ttc aag aca ttt ggc tat agc cat tac															3339	
Lys	Ser	Ile	Ala	Gln	Tyr	Phe	Lys	Thr	Phe	Gly	Tyr	Ser	His	Tyr		
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																1110
atc atg tta acc aat aat ttg aat gga agt tta caa ttg aac aat															3384	
Ile	Met	Leu	Thr	Asn	Asn	Leu	Asn	Gly	Ser	Leu	Gln	Leu	Asn	Asn		
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																1125
gga agt tta cta ttt gaa gat ttc caa caa tat tca gat gag agt															3429	
Gly	Ser	Leu	Leu	Phe	Glu	Asp	Phe	Gln	Gln	Tyr	Ser	Asp	Glu	Ser		
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																1140
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Met	Ile	Met	Ser	Lys	Leu	Pro	Leu	Tyr	Trp	Ser	Leu	Arg	Ala	Thr		
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																1155
cca agt aga acc gct agc gtc agc aac gcg ctc agt aag att ctt															3519	

Pro	Ser	Arg	Thr	Ala	Ser	Val	Ser	Asn	Ala	Leu	Ser	Lys	Ile	Leu	
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gca	agt	tac	aat	aga	aac	ggt	aca	gag	ttc	aaa	aac	tct	gta	agc	3564
Ala	Ser	Tyr	Asn	Arg	Asn	Gly	Thr	Glu	Phe	Lys	Asn	Ser	Val	Ser	
1175						1180					1185				
atg	aat	att	ttt	tat	gca	act	caa	ata	ggg	ctg	ggc	gat	gag	gat	3609
Met	Asn	Ile	Phe	Tyr	Ala	Thr	Gln	Ile	Gly	Leu	Gly	Asp	Glu	Asp	
1190						1195					1200				
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Pro	Thr	Ala	Ala	Gly	Leu	Glu	Val	Phe	Asn	Lys	Ser	Ala	Ile	Val	
1205						1210					1215				
tat	tct	gca	ttc	gca	aaa	aat	gcc	aac	cag	aca	att	gtg	act	tct	3699
Tyr	Ser	Ala	Phe	Ala	Lys	Asn	Ala	Asn	Gln	Thr	Ile	Val	Thr	Ser	
1220						1225					1230				
ctt	caa	aaa	ttc	agt	acc	gac	gta	acc	act	gct	aga	gat	tat	tac	3744
Leu	Gln	Lys	Phe	Ser	Thr	Asp	Val	Thr	Thr	Ala	Arg	Asp	Tyr	Tyr	
1235						1240					1245				
agt	ggt	ctt	tct	gat	atg	tat	gaa	agc	act	caa	ccc	cag	ggt	tcg	3789
Ser	Gly	Leu	Ser	Asp	Met	Tyr	Glu	Ser	Thr	Gln	Pro	Gln	Gly	Ser	
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Leu	Gln	Ser	Asn	Ile	Lys	Ile	Ala	Ile	Asp	Arg	Ser	Asn	Ser	Ser	
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Arg	Leu	Gly	Phe	Asn	Tyr	Ile	Glu	Asn	Asp	Asp	Asn	Arg	Cys	Gly	
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Asp	Lys	Leu	Pro	Glu	Phe	Tyr	Thr	Gly	Arg	Thr	Ala	Leu	Thr	Ala	
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Phe	Pro	Tyr	Tyr	Asp	Ala	Ile	Ala	Lys	Ile	Ala	Thr	Phe	Cys	Pro	
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Ser	Gln	Tyr	Thr	Ser	Met	Leu	Ser	Phe	Gln	Val	Val	Gly	Ser	Gln	
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Leu	Gln	Pro	Asn	Phe	Thr	Asp	Lys	Tyr	Val	Lys	Val	Ile	Ser	Lys	
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Asn Thr Ala Lys Phe Ile Ile	Trp Met Pro Arg Ser	Ala Ala Pro	
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gtc act gat gat gat tat tta	acc ttg ctc aaa ctc	aac acc aca	4284
Val Thr Asp Asp Asp Tyr Leu	Thr Leu Leu Lys Leu	Asn Thr Thr	
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Asn Ala Tyr His Phe Val Val	Pro Phe Tyr Asp Ser	Ala Asp Asn	
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Ser Thr Asp Leu Tyr Tyr Gln	Ile Leu Val Lys Gln	Ala Gly Pro	
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Glu Gly Pro Asp Tyr Tyr Trp	Leu Pro Asn Ala Val	Asn Ala Thr	
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Arg Arg Ser Val Ser Phe Pro Ile Tyr Cys Ala Ser Leu Ala Tyr Ala			
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Ser Ser Lys Tyr Asn Asn Ile Ser Ser Glu Thr Val Gly Ile Ala His			
65	70	75	80
Leu Glu His Arg Gln Ser Leu Ala Lys Asp Phe Thr Cys Ser Asn Ala			
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Thr Lys Asp Thr Asp Val Met Lys Ser Ser Val Asp Asn Val Phe Arg  
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Pro Pro Gln Arg Tyr Ala Asn Phe Phe Ala Val Leu Asn Lys Cys Ser  
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Glu Thr Ala Gln Thr Glu Gln Ser Ser Asp Tyr Gly Thr Phe Leu Thr  
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Lys Val Met Asn Val Thr Ser Lys Ser Gln Gln Arg Pro Asn Asp Pro  
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Ser Asp Pro Val Lys Val Thr Asn Phe Leu Pro Gln Ala Ile Ala Gly  
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Ala Asn Ala Tyr Ser Asp Ile Leu Leu Val Ile Asn Tyr Asn Val Ser  
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Gln Arg Ser Arg Leu Tyr Ile Leu Phe Val Gln Thr Tyr Phe Asn Tyr  
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Thr Asp Thr Tyr Tyr Ala Met Asn Lys Leu Ala Ile Ala Ser Gly Gly  
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Gln Tyr Phe Pro Leu Leu Val Ala Asn Asp Ile Val Ala Lys Ala Tyr  
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Ala Gln Gln Tyr Val Leu Leu Val Thr Asn Glu Asp Ser Leu Gly Asp  
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Gly Pro Val Pro Ala Ser Val Thr Val Thr Gly Ile Asn Val Thr Gln

[View Details](#)

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Pro Ile Tyr Asn Gly Asn Ile Thr Ser Ala Leu Asn Asp Cys Lys Tyr  
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Tyr Ala Asn Thr Lys Asn Tyr Ala Trp Ala Cys Ser Ile Ser Glu Ile  
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Ala Leu Leu Leu Gln Phe Ser Met Arg Asn Ile Gln Ile Asp Arg Val  
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Ala Asp Val Gly Asp Cys Leu Asn Gly Gly Asn Leu Thr Asp Ala Gly  
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Ser Cys Ile Cys Pro Leu Gln Trp Thr Gly Thr Asn Cys Gln Ala Pro  
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Asp Gly Asn Ala Pro Arg Ile Val Gln Ser Thr Thr Asn Ser Glu His

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Tyr Thr Ser Asn Ser Asn Val Thr Ile Asp Pro Asp Phe Leu Ile Arg  
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Glu Ser Gln Asn Ser Ile Thr Leu Ser Leu Val Gly Asn Gly Ile Pro  
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Val Val Pro Leu Phe Gln Ser Leu Gln Tyr Gln Val Asn Thr Pro Gln  
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Arg Val Phe Asn Val Phe Gln Thr Gly Gln Phe Tyr Asn Ser Thr Gln  
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Ile Ser Ile Pro Ala Asp Ser Thr Phe Asp Asn Ala Lys Pro Asn Leu  
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Phe Val His Val Tyr Glu Gly Arg Ile Asn Tyr Ser Asp Pro Ser Thr  
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Asn Gly Asn Glu Val Gly Asn Ser Thr Ile Tyr Phe Leu Pro Tyr Asp  
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Pro Thr Lys Pro Ile Asn Leu Ile Val Asn Asn Asn Gly Thr Thr Gly  
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Tyr Tyr Ala Ile Glu Val Ile Gly Tyr Leu Lys Thr Ser Tyr Gly Phe  
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Asn Ile Asp Asn Ala Asn Gly Ser Asn Glu Asn Leu Asn Ser Gly Val

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Gln Leu Pro Lys Thr Asp Pro Ser Asn Phe Pro Tyr Leu Thr Leu Gly  
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Glu Ile Ala Ser Asn Gly Thr Val Leu Pro Ala Thr Thr Val Leu Phe  
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Thr Arg Lys Ser Gly Ala Ser Cys Phe Tyr Ser His Phe Thr Val Leu  
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Asp Val Cys Ser Gln Ser Thr Thr Ile Gly Tyr Gln Ala Gln Leu Thr  
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Thr Arg Thr Ser Thr Leu Thr Asn Arg Ile Gln Gln Phe Val Leu Thr  
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Cys Phe Lys Thr Ser Tyr Ala Asn Asn Asp Thr Ser Cys His Gly His  
930 935 940

Gly Ser Pro Met Ala Thr Cys Ala Cys Asn Ala Asp Phe Gly Gly Ile  
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980 985 990

Glu Ser Arg Gln Asn Leu Pro Ile Arg Lys Leu Ser Thr Pro Asn Tyr  
995 1000 1005

Gly Gln Ile Thr Asp Lys Leu Leu Val Lys Lys Phe Ile Gln Phe  
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Ser Gln Ser Thr Ile Val Ser Thr Val Thr Thr Gln Ser Pro Ser

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Pro Ser Thr Thr Ala Pro Lys Gln Val Arg Ala Ala Ala Phe Ile  
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Gly Ser Leu Leu Phe Glu Asp Phe Gln Gln Tyr Ser Asp Glu Ser  
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Pro Ser Arg Thr Ala Ser Val Ser Asn Ala Leu Ser Lys Ile Leu  
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1290

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Arg Leu Gly Phe Asn Tyr Ile Glu Asn Asp Asp Asn Arg Cys Gly  
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Ser Gln Tyr Thr Ser Met Leu Ser Phe Gln Val Val Gly Ser Gln  
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Leu Gln Pro Asn Phe Thr Asp Lys Tyr Val Lys Val Ile Ser Lys  
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Asn Thr Ala Lys Phe Ile Ile Trp Met Pro Arg Ser Ala Ala Pro  
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Val Thr Asp Asp Asp Tyr Leu Thr Leu Leu Lys Leu Asn Thr Thr  
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Ser Thr Asp Leu Tyr Tyr Gln Ile Leu Val Lys Gln Ala Gly Pro  
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Glu Gly Pro Asp Tyr Tyr Trp Leu Pro Asn Ala Val Asn Ala Thr  
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Ala Ala Ser His Ile Tyr Gln Asn  
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Gln Phe Val Gln Met Ile Leu Asn Ser Leu Ile Asn Lys Ser Lys Ser  
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Ser Met Phe Gln Val Arg Thr Leu Arg Glu Leu Leu Trp Gly Tyr Arg  
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Asp Pro Phe Leu Ser Leu Val Pro Tyr Pro Val Thr Thr Val Gly  
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Leu Phe Tyr Pro  
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Ser Ser Pro Ser Ala Glu Leu Gln Cys Cys Ala Gly Trp Arg Gln Lys  
35 40 45

Asp Gln Glu Cys Thr Ile Pro Ile Cys Glu Gly Pro Asp Ala Cys Gln  
50 55 60

Lys Asp Glu Val Cys Val Lys Pro Gly Leu Cys Arg Cys Lys Pro Gly  
65 70 75 80

Phe Phe Gly Ala His Cys Ser Ser Arg Cys Pro Gly Gln Tyr Trp Gly  
85 90 95

Pro Asp Cys Arg Glu Ser Cys Pro Cys His Pro His Gly Gln Cys Glu  
100 105 110

Pro Ala Thr Gly Ala Cys Gln Cys Gln Ala Asp Arg Trp Gly Ala Arg  
115 120 125

Cys Glu Phe Pro Cys Ala Cys Gly Pro His Gly Arg Cys Asp Pro Ala  
130 135 140

Thr Gly Val Cys His Cys Glu Pro Gly Trp Trp Ser Ser Thr Cys Arg  
145 150 155 160

Arg Pro Cys Gln Cys Asn Thr Ala Ala Ala Arg Cys Glu Gln Ala Thr  
165 170 175

Gly Ala Cys Val Cys Lys Pro Gly Trp Trp Gly Arg Arg Cys Ser Phe  
180 185 190

Arg Cys Asn Cys His Gly Ser Pro Cys Glu Gln Asp Ser Gly Arg Cys  
195 200 205

Ala Cys Arg Pro Gly Trp Trp Gly Pro Glu Cys Gln Gln Cys Glu  
210 215 220

Cys Val Arg Gly Arg Cys Ser Ala Ala Ser Gly Glu Cys Thr Cys Pro  
225 230 235 240

Pro Gly Phe Arg Gly Ala Arg Cys Glu Leu Pro Cys Pro Ala Gly Ser  
245 250 255

His Gly Val Gln Cys Ala His Ser Cys Gly Arg Cys Lys His Asn Glu  
260 265 270

Pro Cys Ser Pro Asp Thr Gly Ser Cys Glu Ser Cys Glu Pro Gly Trp  
275 280 285

Asn Gly Thr Gln Cys Gln Gln Pro Cys Leu Pro Gly Thr Phe Gly Glu  
290 295 300

Ser Cys Glu Gln Gln Cys Pro His Cys Arg His Gly Glu Ala Cys Glu  
305 310 315 320

Pro Asp Thr Gly His Cys Gln Arg Cys Asp Pro Gly Trp Leu Gly Pro  
325 330 335

Arg Cys Glu Asp Pro Cys Pro Thr Gly Thr Phe Gly Glu Asp Cys Gly  
340 345 350

Ser Thr Cys Pro Thr Cys Val Gln Gly Ser Cys Asp Thr Val Thr Gly  
355 360 365

Asp Cys Val Cys Ser Ala Gly Tyr Trp Gly Pro Ser Cys Asn Ala Ser  
370 375 380

Cys Pro Ala Gly Phe His Gly Asn Asn Cys Ser Val Pro Cys Glu Cys  
385 390 395 400

Pro Glu Gly Leu Cys His Pro Val Ser Gly Ser Cys Gln Pro Gly Ser  
405 410 415

Gly Ser Arg Asp Thr Ala Leu Ile Ala Gly Ser Leu Val Pro Leu Leu  
420 425 430

Leu Leu Phe Leu Gly Leu Ala Cys Cys Ala Cys Cys Cys Trp Ala Pro  
435 440 445

Arg Ser Asp Leu Lys Asp Arg Pro Ala Arg Asp Gly Ala Thr Val Ser  
450 455 460

Arg Met Lys Leu Gln Val Trp Gly Thr Leu Thr Ser Leu Gly Ser Thr  
465 470 475 480

Leu Pro Cys Arg Ser Leu Ser Ser His Lys Leu Pro Trp Val Thr Val  
485 490 495

Ser His His Asp Pro Glu Val Pro Phe Asn His Ser Phe Ile Glu Pro  
500 505 510

Pro Ser Ala Gly Trp Ala Thr Asp Asp Ser Phe Ser Ser Asp Pro Glu  
515 520 525

Ser Gly Glu Ala Asp Glu Val Pro Ala Tyr Cys Val Pro Pro Gln Glu  
530 535 540

Gly Met Val Pro Val Ala Gln Ala Gly Ser Ser Glu Ala Ser Leu Ala  
545 550 555 560

Ala Gly Ala Phe Pro Pro Pro Glu Asp Ala Ser Thr Pro Phe Ala Ile  
565 570 575

Pro Arg Thr Ser Ser Leu Ala Arg Ala Lys Arg Pro Ser Val Ser Phe  
580 585 590

Ala Glu Gly Thr Lys Phe Ala Pro Gln Ser Arg Arg Ser Ser Gly Glu  
595 600 605

Leu Ser Ser Pro Leu Arg Lys Pro Lys Arg Leu Ser Arg Gly Ala Gln  
610 615 620

Ser Gly Pro Glu Gly Arg Glu Ala Glu Glu Ser Thr Gly Pro Glu Glu  
625 630 635 640

Ala Glu Ala Pro Glu Ser Phe Pro Ala Ala Ala Ser Pro Gly Asp Ser  
645 650 655

Ala Thr Gly His Arg Arg Pro Pro Leu Gly Gly Arg Thr Val Ala Glu  
660 665 670

His Val Glu Ala Ile Glu Gly Ser Val Gln Glu Ser Ser Gly Pro Val  
675 680 685

Thr Thr Ile Tyr Met Leu Ala Gly Lys Pro Arg Gly Ser Glu Gly Pro  
690 695 700

Val Arg Ser Val Phe Arg His Phe Gly Ser Phe Gln Lys Gly Gln Ala  
705 710 715 720

Glu Ala Lys Val Lys Arg Ala Ile Pro Lys Pro Pro Arg Gln Ala Leu  
725 730 735

Asn Arg Lys Lys Gly Ser Pro Gly Leu Ala Ser Gly Ser Val Gly Gln  
 740 745 750

Ser Pro Asn Ser Ala Pro Lys Ala Gly Leu Pro Gly Ala Thr Gly Pro  
 755 760 765

Met Ala Val Arg Pro Glu Glu Ala Val Arg Gly Leu Gly Ala Gly Thr  
 770 775 780

Glu Ser Ser Arg Arg Ala Gln Glu Pro Val Ser Gly Cys Gly Ser Pro  
 785 790 795 800

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 Asp Asp Lys Met Lys Pro Ala Asn Asp Glu Pro Asp Gln Lys Ser Cys  
 5 10 15

ggc aag aag cct aaa ggt ctg cat ttg ctt tcc tcc cca tgg tgg ttc 152  
 Gly Lys Pro Lys Gly Leu His Leu Leu Ser Ser Pro Trp Trp Phe  
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cct gct gct atg act ctg gtc atc ctc tgc ctg gtg ttg tca gtg acc 200  
 Pro Ala Ala Met Thr Leu Val Ile Leu Cys Leu Val Ser Val Thr  
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ctt att gta cag tgg aca caa tta cgc cag gta tct gac ctc tta aaa 248  
 Leu Ile Val Gln Trp Thr Gln Leu Arg Gln Val Ser Asp Leu Leu Lys  
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caa tac caa gcg aac ctt act cag cag gat cgt atc ctg gaa ggg cag 296  
 Gln Tyr Gln Ala Asn Leu Thr Gln Gln Asp Arg Ile Leu Glu Gly Gln  
 70 75 80

atg tta gcc cag cag aag gca gaa aac gct tca cag gaa tca aag aag 344  
 Met Leu Ala Gln Gln Lys Ala Glu Asn Ala Ser Gln Glu Ser Lys Lys  
 85 90 95

gaa ctg aaa gga aag ata gac acc ctc acc cag aag ctg aat gag aaa 392  
 Glu Leu Lys Gly Lys Ile Asp Thr Leu Thr Gln Lys Leu Asn Glu Lys  
 100 105 110 115

tcc aaa gag cag gag gag ctt cta cag aag aat cag aac ctc caa gaa Ser Lys Glu Gln Glu Glu Leu Leu Gln Lys Asn Gln Asn Leu Gln Glu 120 125 130	440
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cag aga gct gca aac tct tca gag gag tcc cag aga gaa ctc aag gga Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln Arg Glu Leu Lys Gly 180 185 190 195	632
aag ata gac acc ctc acc ttg aag ctg aac gag aaa tcc aaa gag cag Lys Ile Asp Thr Leu Thr Leu Lys Leu Asn Glu Lys Ser Lys Glu Gln 200 205 210	680
gag gag ctt cta cag aag aat cag aac ctc caa gaa gcc ctg caa aga Glu Glu Leu Leu Gln Lys Asn Gln Asn Leu Gln Glu Ala Leu Gln Arg 215 220 225	728
gct gca aac ttt tca ggt cct tgt cca caa gac tgg ctc tgg cat aaa Ala Ala Asn Phe Ser Gly Pro Cys Pro Gln Asp Trp Leu Trp His Lys 230 235 240	776
gaa aac tgt tac ctc ttc cat ggg ccc ttt agc tgg gaa aaa aac cgg Glu Asn Cys Tyr Leu Phe His Gly Pro Phe Ser Trp Glu Lys Asn Arg 245 250 255	824
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							20		25				30		

Trp	Trp	Phe	Pro	Ala	Ala	Met	Thr	Leu	Val	Ile	Leu	Cys	Leu	Val	Leu
						35			40			45			

Ser	Val	Thr	Leu	Ile	Val	Gln	Trp	Thr	Gln	Leu	Arg	Gln	Val	Ser	Asp
						50			55		60				

Leu	Leu	Lys	Gln	Tyr	Gln	Ala	Asn	Leu	Thr	Gln	Gln	Asp	Arg	Ile	Leu
					65			70		75			80		

Glu	Gly	Gln	Met	Leu	Ala	Gln	Gln	Lys	Ala	Glu	Asn	Ala	Ser	Gln	Glu
						85			90			95			

Ser Lys Lys Glu Leu Lys Gly Lys Ile Asp Thr Leu Thr Gln Lys Leu  
100 105 110

Asn Glu Lys Ser Lys Glu Gln Glu Leu Leu Gln Lys Asn Gln Asn  
115 120 125

Leu Gln Glu Ala Leu Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln  
130 135 140

Arg Glu Leu Lys Gly Lys Ile Asp Thr Ile Thr Arg Lys Leu Asp Glu  
145 150 155 160

Lys Ser Lys Glu Gln Glu Glu Leu Leu Gln Met Ile Gln Asn Leu Gln  
165 170 175

Glu Ala Leu Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln Arg Glu  
180 185 190

Leu Lys Gly Lys Ile Asp Thr Leu Thr Leu Lys Leu Asn Glu Lys Ser  
195 200 205

Lys Glu Gln Glu Glu Leu Leu Gln Lys Asn Gln Asn Leu Gln Glu Ala  
210 215 220

Leu Gln Arg Ala Ala Asn Phe Ser Gly Pro Cys Pro Gln Asp Trp Leu  
225 230 235 240

Trp His Lys Glu Asn Cys Tyr Leu Phe His Gly Pro Phe Ser Trp Glu  
245 250 255

Lys Asn Arg Gln Thr Cys Gln Ser Leu Gly Gly Gln Leu Leu Gln Ile  
260 265 270

Asn Gly Ala Asp Asp Leu Thr Phe Ile Leu Gln Ala Ile Ser His Thr  
275 280 285

Thr Ser Pro Phe Trp Ile Gly Leu His Arg Lys Lys Pro Gly Gln Pro  
290 295 300

Trp Leu Trp Glu Asn Gly Thr Pro Leu Asn Phe Gln Phe Phe Lys Thr  
305 310 315 320

Arg Gly Val Ser Leu Gln Leu Tyr Ser Ser Gly Asn Cys Ala Tyr Leu  
325 330 335

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Ile Cys Gln Lys Lys Thr Asn His Leu Gln Ile  
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Ala Ala Arg Ala His Tyr Asn Ile Val Thr Phe Ala Ala Ile Tyr  
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Lys Lys Ser Gln His Met Ala Ala Ala Val Asn Ile Arg Asn Cys Cys  
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Tyr Ile Ala Ala Ala Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu  
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Asn Asn  
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&lt;400&gt; 163

Cys Val Ile Ala  
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&lt;210&gt; 164 &lt;211&gt; 6 &lt;212&gt; PRT &lt;213&gt; Unknown &lt;220&gt; &lt;223&gt; Conserved domain

&lt;220&gt; &lt;221&gt; MISC\_FEATURE &lt;222&gt; (3)..(3) &lt;223&gt; Xaa can be any amino acid

&lt;220&gt; &lt;221&gt; MISC\_FEATURE &lt;222&gt; (6)..(6) &lt;223&gt; Xaa can be any amino acid

&lt;400&gt; 164

Leu Pro Xaa Thr Gly Xaa  
1 5

&lt;210&gt; 165 &lt;211&gt; 6 &lt;212&gt; PRT &lt;213&gt; Homo sapiens &lt;400&gt; 165

Val Thr Tyr Ala Gln Leu  
1 5

&lt;210&gt; 166 &lt;211&gt; 6 &lt;212&gt; PRT &lt;213&gt; Homo sapiens &lt;400&gt; 166

Ile Val Tyr Glu Leu Leu  
1 5